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ABSTRACT

The second of seven volumes reporting results of a national survey of individualized education programs (IEPs) covers the study's methodology and instrumentation. Introductory sections review the background, objectives, and design related activities of the project. Three aspects of the study are noted: the basic survey (analysis of IEPs for 2,657 public schools); the state/special facility substudy (analysis of IEPs of 550 students in state/special facilities); and the retrospective longitudinal study (analysis of changes in IEPs over a two year period). The next two chapters present information on sampling procedures and a description of study instrumentation, including the following: IEP evaluation checklist, student characteristics questionnaire, school district characteristics questionnaire, and state/special facility characteristics questionnaire. The final two chapters review data collection and data analysis procedures. Sixteen appendixes include sample instrumentation forms and correspondence. (CL)

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FINAL REPORT

A NATIONAL SURVEY OF INDIVIDUALIZED EDUCATION PROGRAMS (IEPs) FOR HANDICAPPED CHILDREN

Volume II

INTRODUCTION, METHODOLOGY, AND INSTRUMENTATION

by

John N. Pyecha, Project Director
J. Lamarr Cox, Associate Project Director
Dale DeWitt
Douglas Drummond
Jay Jaffe
Morse Kalt
Carolee Lane
John Pelosi

Prepared for

Office of Special Education
U.S. Department of Education
under
Contract No. 300-77-0529

RESEARCH TRIANGLE PARK, NORTH CAROLINA 27709

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Preface and Acknowledgements

A National Survey of Individualized Education Programs (IEPs) for Handicapped Children, the final report of the research conducted by the Research Triangle Institute under USOE Contract Number 300-77-0529, is presented in five volumes:

Volume I, Executive Summary of Methodology and Major Findings
Volume II, Introduction, Methodology, and Instrumentation
Volume III, Findings for the Basic Survey
Volume IV, Findings for the Retrospective Longitudinal Substudy
Volume V, Findings for the State/Special Facility Substudy.

The authors, in preparing Volume II of this report, wish to express their special appreciation for the cooperation and contributions of a number of people, both within and outside the Research Triangle Institute (RTI).

Valuable professional guidance was provided by Drs. Linda Morra and Nancy Safer, Office of Special Education. Dr. Morra served as the OSE Project Officer during the design and data collection phases of the study; Dr. Safer served as the Project Officer during the report preparation phase.

The following persons made contributions to the sample design, data processing, IEP coding, data analysis, and report preparation activities of the study:

Ms. Paula Bell (University of North Carolina at Chapel Hill): IEP rater for the Informativeness/Internal Consistency Study
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Ms. Annette Born: Survey field supervisor
Mr. Dick Boytos: Survey field supervisor
Mr. Wayne Bradburn: Field staff training and supervision
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Dr. Ronald Wiegerink (University of North Carolina at Chapel Hill): data analysis

Ms. Hilda Zimmerman: Survey field supervisor

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Chapter 1

Introduction

Written Individualized Education Programs (IEPs) for all handicapped children are required by the Education for All Handicapped Children Act of 1975 (as amended by P.L. 93-380 and P.L. 94-142). Section 618(d) of the Act also requires that a national survey be conducted to describe IEPs in order to assist Congress in evaluating the usefulness of these documents. As a result, the Bureau of Education for the Handicapped (now the Office of Special Education within the Department of Education), USOE, contracted with the Research Triangle Institute (RTI) to design and conduct a survey of the properties and contents of IEPs.

The contract to design and conduct the IEP survey was awarded in three one-year phases. The first phase (October 1, 1977 to September 30, 1978) involved the survey design; the second phase (October 1, 1978 to September 30, 1979) covered the actual conduct of the survey, from sample selection through the preliminary data analyses; and the third phase (October 1, 1979 to September 30, 1980) covered final data analyses and reporting. The results of the one-year design phase are presented in the final report of Phase I activities.[1]

The results of Phase II and III activities are described in a five-volume report entitled, A National Survey of Individualized Programs (IEPs) for Handicapped Children. Volume I is an executive summary of the survey methodology and findings. Volume III describes the properties and contents of IEPs prepared for the target population of the Basic Survey. Volumes IV and V present the findings of the Retrospective Longitudinal Substudy and State/Special Facility Substudy, respectively. This volume, Volume II, describes the survey background, objectives, methodology, and instrumentation.

Subsequent sections of this chapter provide a brief background for the present research (Section I), state the objectives of the survey (Section II), overview the activities undertaken prior to designing of the national survey (Section III), and outline the organization of the remainder of Volume II (Section IV).

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[1] Pyecha, J. N., et al. Design of a National Survey of Individualized Education Programs (IEPs) for Handicapped Children. Research Triangle Park, N.C.: Research Triangle Institute, November 1978.

I. BACKGROUND OF THE STUDY

Handicapped children in the United States historically have been denied the opportunity for a free public education. Because of physical, mental, or emotional disabilities, many children have received less educational opportunity than their nonhandicapped peers and some have been totally denied any formal educational experiences.

The enactment of the Education for All Handicapped Children Act of 1975 (as amended by P.L. 93-380 and P.L. 94-142) marks the most recent and sweeping gain in the right of handicapped children to a free and appropriate public education. This landmark legislation requires full educational opportunities for all school-aged handicapped children, including those now housed in institutions. Handicapped children are defined as "...mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, orthopedically impaired, and other health impaired children or children with specific learning disabilities who by reason thereof, require special education and related services." (Section 602 (1) of P.L. 94-142).

The Act specifies a number of activities that schools must engage in to insure that these children receive a free, appropriate public education. For example, it requires group decision-making regarding the needs of the child and the most appropriate placement for the child; it requires that an IEP be developed for each child identified as needing special education and related services; it requires schools to notify parents, include them in the decision-making process, and provide them with an opportunity to a hearing if they are dissatisfied with the decision. Furthermore, it requires that each child be provided with educational services in the least restrictive environment. The first service priority is for all those handicapped children not presently served; the second priority is for those severely handicapped children who are inadequately served.

BEH has been given the responsibility for administering the law, for evaluating the implementation of the law, and for providing the Congress with an annual report of progress in implementation. State Education Agencies (SEAs) have primary responsibility for compliance with the Act.

Although the Act addresses education of the handicapped at the school district level, it also recognizes education appropriate to individual children as the primary criterion for compliance through its requirements for IEPs.

IEPs are a cornerstone of the "appropriate public education" mandated by P.L. 94-142. House Report 94-332 on the authorizing legislation stated that the prescription for such a program responded to three tenets; the first stating that each child requires an educational plan that is tailored to achieve his or her maximum potential; the second stating that all principals in the child's educational environment should have the opportunity for input in the development of such a program; the third stating that individualization "means specifics and timetables for those specifics, and the need for periodic review of those specifics--all of which produce greatly enhanced fiscal and educational accountability" (p. 13 of House Report 94-332). These tenets provide the rationale for, and underscore the importance of IEPs in, the concept of education that is the essence of P.L. 94-142.

The law requires that the program be a written statement for each handicapped child which includes: (a) a statement of the present levels of educational performance of such child, (b) a statement of annual goals, including short-term instructional objectives, (c) a statement of the specific educational services to be provided to such child, and the extent to which such child will be able to participate in regular educational programs, (d) the projected date for initiation and anticipated duration of such services, and (e) appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether instructional objectives are being met (Section 602 of the Education for All Handicapped Children Act of 1975 [P.L. 94-142]).

While the Act specifies the basic content required for the IEP and the basic procedures for its development, it leaves considerable discretion to the state and/or to the local school districts as to format and specificity. For example, the contents of the IEP may be broadly or specifically stated; they may contain one goal statement, or several goal statements; they may contain objectives stated in general terms, or in measurable behavioral terms. IEPs may vary considerably in length and in the number of persons involved in their development. They may come in a variety of formats, and they may vary in the extent to which their formats are common within a school, school district, or state.

Because of potential variability in local implementation of the IEP mandate and because of its centrality to the Act, Section 618(d) of P.L. 94-142 specifies that "...the Commissioner shall conduct a statistically valid survey for assessing the effectiveness of individualized education programs." The intent of the national survey described herein was to respond to this requirement by assessing the nature and extent of this potential variability in local implementation of the IEP mandate.

II. OBJECTIVES OF THE SURVEY

Since little is known about the state-of-the-art across the nation relative to the properties and contents of IEPs and the process whereby they are developed, the major objective of the national survey was to describe the properties and content of IEPs prepared for a national sample of handicapped students in the 48 contiguous United States. As secondary purposes, the national survey was designed to: (a) identify those factors that are associated with variations in the properties and content of IEPs; (b) provide descriptive information about the target population, the nature of and setting for the special education services provided to this population, and the process whereby IEPs are developed; (c) assess changes in significant properties of IEPs from one year to the next; and (d) provide insights into the extent to which the services actually provided to handicapped students coincide with those specified in their IEPs.

III. DESIGN-RELATED ACTIVITIES

During the first year of the study (1 October 1977 to 30 September 1978), four major activities were undertaken to obtain the background information required to develop and test a strategy for assessing the content and properties of IEPs and to design a national survey in which such an IEP assessment scheme can be applied; i.e., (a) a review of related literature was conducted, (b) exploratory site visits were made to selected public schools and state/special facilities in five states, (c) copies of IEPs and supporting documentation, collected during the exploratory site visits for a sample of students served by the site-visited public schools and state/special facilities, were analyzed, and (d) enrollment data for all public schools in the nation (including those special schools administered by public school systems to serve handicapped students) were extracted from a machine-readable data file prepared by the Curriculum Information Center (CIC)[2] and analyzed to provide information related to sample design. These activities are overviewed below; a detailed description is presented in the Phase I report (see footnote 1).

A. Literature Review

A review and analysis of relevant literature was conducted and a file of these materials was established. Brief summaries of each paper or report included in the file were prepared and distributed to each member of the study team to acquaint them with general topics addressed in the literature. Materials were arranged in a project file corresponding to the major included topical areas and were filed for easy access by study team members through a centralized checkout system.

B. Exploratory Site Visits

Members of the RTI study team made site visits to SEAs, Local Education Agencies (LEAs), and state/special facilities in a total of five states (Alabama, Minnesota, Nevada, North Carolina, and Pennsylvania) to: (1) obtain background information for designing the survey; (2) explore various approaches for selecting student samples; (3) field-test drafts of the four questionnaires developed for the study (Student Characteristics Questionnaire, School Characteristics Questionnaire, School District Characteristics Questionnaire, and State/Special Facility Characteristics Questionnaire); and (4) obtain a sample of IEPs for use in developing and testing a scheme for evaluating their properties and content. A total of 5 SEAs, 11 LEAs, and 9 state/special facilities were visited by two- or three-person teams.

SEA and LEA site visits were made over a period of three months (December 1977-February 1978); state/special facilities were visited in June 1978. The site-visit teams spent one-half to one day at each SEA, two and one-half to three days at a total of two or three LEAs in each state, and one-half to one day at each state/special facility discussing the IEP process with involved personnel, obtaining a sample of IEPs, and field-testing the questionnaires.

In addition to discussing the IEP process with involved personnel and field-testing the questionnaires, the site-visit team members selected and reproduced a sample of IEPs at each school or facility. This IEP collection activity served as a field test of procedures for sampling, collecting, and reproducing IEPs at school sites. Furthermore, these collected IEPs were used to develop and test the approach for describing and assessing the properties and content of IEPs.

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[2] Curriculum Information Center, Incorporated, 600 Ross Building, 1726 Champa Street, Denver, Colorado, 80202.

A total sample of 278 IEPs, and their supporting documentation, were either reproduced (less any personally identifiable information) and brought back to RTI by the site-visit teams, or reproduced by school personnel and mailed directly to RTI. Of this total, 215 were collected in public schools; the remaining 63 were collected in state/special facilities.

Public school children for whom the 215 IEPs in this sample were developed were enrolled in a total of 64 schools located in 17 LEAs (some IEPs were obtained at the district level for schools that were not visited) across 4 states. These IEPs were prepared by a total of 117 different special education teachers. One hundred of the students in the IEP sample attended rural schools, 97 attended urban schools, and 18 attended suburban schools. When classified by handicapping condition, the 215 students were distributed as follows: 28 TMRs; 65 EMRs; 17 PMRs; 2 visually impaired; 14 speech impaired; 2 orthopedically impaired; 3 hearing impaired; 1 deaf/blind; 51 learning disabled; and 32 multiply handicapped.

The IEPs collected for the 63 students in state/special facilities represented nine facilities across four states. These facilities served students with a variety of handicapping conditions (i.e., cerebral palsied, emotionally disturbed, blind, deaf, mentally retarded, and multiply handicapped).

C. Analysis of IEPs

Two types of analyses were conducted on the IEPs collected during the site visits. The first was a rater/instrument reliability substudy; the second was a variance component substudy.

The rater/instrument reliability substudy played a major role in the development of the IEP assessment scheme (i.e., the IEP Evaluation Checklist). The primary objectives of this substudy were to: (1) verify the estimate of time required per IEP to complete the IEP Evaluation Checklist, (2) identify problem items so that necessary modifications could be made to the checklist and/or to the instructions for using the checklist, (3) assess the viability of the IEP Evaluation Checklist as a method for summarizing survey data related to the properties and contents of IEPs, and (4) provide data to assist in determining the optimum rater type to use for the survey.

To accomplish these objectives, six different persons used the initial draft of the IEP Evaluation Checklist to describe and/or rate the key properties of a sample of 64 IEPs. These key properties were identified with the assistance of BEH personnel and other experts in the provision of special education for various handicapping conditions; e.g., Dr. Ronald Wiegerink (University of North Carolina-Chapel Hill and a specialist in behavior disorders, emotional disturbances, and severe and multiple handicaps--especially autism), Dr. John Pelosi (University of North Carolina-Chapel Hill and a specialist in educable mentally retarded and emotional disturbances), Mr. Jon Miller (University of North Carolina-Chapel Hill and a specialist in provision of programs for educable and trainable mentally retarded), and Dr. Lucy T. Davis (Duke University and a specialist in learning disabilities, emotional disturbances, and programs for exceptional children). The degree of agreement in the codes applied to each of the checklist items by the six raters was analyzed. Items that had low inter-rater reliability were either revised, excluded from the checklist, or supported with additional instructions and definitions. The results of this substudy substantiated the checklist as a viable method for assessing the properties and contents of IEPs, and indicated that the checklist could be applied effectively by trained junior professionals. Application of the checklist required approximately 25 minutes per IEP.

The second substudy, the variance component substudy, was conducted to obtain estimates of the variance in the properties and contents of IEPs, as measured by eleven key IEP Evaluation Checklist items responses, that occurs "within" and "between" schools and LEAs. For this substudy, a professional staff person used the 11 key IEP Evaluation Checklist items to rate each of the 215 IEPs that were collected from public schools. The checklist item responses were keyed into computer-readable formats and appropriately analyzed. The results suggested that most of the variance in IEP Evaluation Checklist responses pertaining to IEP properties and contents could be expected to occur between LEAs, indicating that a national sample of students should be distributed across a large number of schools and LEAs (as opposed to being clustered within a relatively small number of schools).

D. Analysis of Enrollment Data in CIC Files

The CIC files contain data reflecting enrollment and grade classification for every public school in the nation. In addition, the files furnish a means of identifying special education schools as well as regular public schools that provide special classroom(s) for the handicapped (by elementary and high school).

Enrollment data were extracted from these files at the public school-district level and cross-classified by district size and presence of the eight possible configurations in the district (i.e., districts having or not having special education schools; elementary school(s) having or not having special classroom(s) for the handicapped; and high school(s) having or not having special classroom(s) for the handicapped. Similar cross-tabulations were made on enrollments in schools). In both instances, national and state-level summaries were prepared.

These enrollment data provided a convenient vehicle for introducing stratification into the sample design and for quantifying the expected number of sample students by type of school. In addition, they facilitated the proportional allocations of students to special education versus regular schools.

IV. ORGANIZATION OF THE REMAINDER OF VOLUME II

Chapter 2 provides an overview of the national survey, delineating the basic survey from its two companion substudies. Included in this overview is a specification of the target population for, and the questions to be addressed by, the basic survey and each of its substudies.

Chapter 3 presents a detailed listing of the major questions addressed by the national survey.

Chapter 4 overviews the sampling procedures used in the survey and introduces sampling error considerations related to the survey findings.

Chapter 5 provides a brief description of the instrumentation used in the national survey.

Chapter 6 overviews the procedures used to collect and process the survey data. Included in his chapter is the methodology used to complete the IEP checklists to summarize the major properties and contents of the IEP documents that were collected.

Chapter 7 describes the analytic tasks and the criteria used to determine the educational and statistical significance of survey findings.

Supplementary information and materials for all four volumes of this report are appended as follows:

Appendix A. *Specific Details on Implementation of Sample Design*
Appendix B. *Computation of Sampling Weights, Adjustment for Nonresponse, and Standard Errors*
Appendix C. *IEP Evaluation Checklist*
Appendix D. *Student Characteristics Questionnaire and Data-of-Record Form 4*
Appendix E. *School Characteristics Questionnaire and Data-of-Record Form 2*
Appendix F. *School District Characteristics Questionnaire and Data-of-Record Form 1*
Appendix G. *State/Special Facility Characteristics Questionnaire and Data-of-Record Form 3*
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Appendix P. *Procedures Followed in Completing IEP Evaluation Checklist*

General Description of the National Survey

I. GENERAL

The National Survey of IEPs consists of a Basic Survey and two special substudies: a State/Special Facility Substudy and a Retrospective Longitudinal Substudy. The Basic Survey focused on a series of basic questions related to the IEPs and characteristics of handicapped students in public schools administered by a local education agency (LEA), and to the type and service setting of the special educational services they received (as specified in the IEPs). The State/Special Facility Substudy addressed a similar set of questions about handicapped students in non-LEA administered schools and facilities. The Retrospective Longitudinal Substudy, which consisted of two levels, was an exploratory substudy designed to provide insights into changes that occur over time in the properties and contents of IEPs. Level 1 of the Retrospective Longitudinal Substudy addressed a question about changes that occur in significant properties of IEPs that have been prepared within the same LEA for the target population over two consecutive years; Level 2 of this substudy addressed answers to questions about: (a) the nature of special education services actually received over two consecutive years, (b) the degree to which the type of services received coincided with those specified in IEPs, (c) the knowledge that students and their parents have about the IEPs, and (d) the type of personnel who participate in the development of IEPs.

This chapter provides an overview of the Basic Survey and these two substudies. The general questions they were designed to address (which are listed in subsequent sections of this chapter) were developed jointly by BEH staff and the RTI project team. As such, they represent the concerns and information needs expressed by various BEH staff personnel. Answers to these questions will provide data for the Commissioner's Annual Report to Congress, as well as for helping to meet the basic information needs of those concerned with administering, implementing, and monitoring P.L. 94-142 at state and Federal levels. Also, answers to these questions partially address three of the six questions identified in the BEH evaluation plan for P.L. 94-142: Are we serving the intended beneficiaries? In what setting are the beneficiaries being served? What services are being provided to beneficiaries?

II. THE BASIC SURVEY

The major objective of the Basic Survey was to describe the properties and contents of a national sample of IEPs; secondary objectives included the identification of factors associated with variations in the properties and content of IEPs, and the provision of descriptive information about the handicapped students being served, the nature of the services they received and the settings in which the services were provided, and the process whereby their IEPs were developed. More specifically, the Basic Survey was intended to provide answers to ten questions:

a) What do IEPs look like?
b) What kinds of information do IEPs contain?
c) How is information presented in IEPs?
d) Who participates in the development and approval of IEPs?
e) What types of special education and related services are specified in IEPs?
f) How informative and internally consistent are IEPs?
g) In what service settings, and for what proportion of the academic week, do students receive special education services?
h) What are the characteristics of students who have IEPs and are enrolled in public schools, and of the schools and school districts in which they are enrolled?
i) How do the types, service settings, and amounts of special education services specified in IEPs vary by selected student, school, and school district characteristics?
j) How do the formats, properties, contents, and development processes of IEPs vary by selected student, school, and school district characteristics?

The target population for the Basic Survey was all children in 47 of the 48 contiguous United States (New Mexico was excluded) and the District of Columbia who were, as of 1 December 1978: (a) between the ages of 3 and 21, inclusive; (b) enrolled in a public elementary or secondary school administered by a local education agency; and (c) classified by their place of enrollment as being handicapped and receiving special education and related services.

The Basic Survey involved photocopying the IEPs of, and obtaining related descriptive information for, 2,657 public school students from 507 schools in

208 school districts. A trained survey specialist visited each school in the survey sample to select the student sample and to complete these data collection activities. After selecting the sample of students (and before leaving the school site), the survey specialist photocopied each student's IEP (deleting any personally identifiable information), distributed a School Characteristics Questionnaire to the principal and a Student Characteristics Questionnaire to the teacher primarily responsible for preparing each student's IEP, collected and scan-edited the completed questionnaires from the principal and teachers, and placed a unique ID number on each IEP and questionnaire. The survey specialist also had a School District Characteristics Questionnaire completed at the district level.

When data collection was completed in a sampled LEA, all completed materials were returned to RTI for further processing. As these materials arrived at RTI, they were entered into a data receipt and control system. The properties and contents of each IEP were described by applying an IEP Evaluation Checklist at RTI, thus generating a set of coded checklist responses for each IEP. These coded checklist forms, along with all questionnaire items, were edited manually, keyed into machine-readable files, machine edited, weighted properly, and formatted for subsequent analyses. The descriptive measures generated through these analyses are population estimates based on the analysis of properly weighted sample data. Estimates of the standard errors associated with these population were also computed.

III. THE STATE/SPECIAL FACILITY SUBSTUDY

The objectives of the State/Special Facility Substudy were similar to the objectives of the Basic Survey except that the focus was on handicapped students in "state/special facilities"[1] rather than in public elementary or secondary schools.

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[1] For purposes of this study, "state/special facilities" are defined to include (1) non-LEA administered schools listed in the CIC Directory (Curriculum Information Center, Incorporated, 600 Ross Building, 1726 Champa Street, Denver, Colorado, 80202); (2) institutions receiving P.L. 89-313 funds (according to the third annual report of the United States Commissioner of Education on Uses of State Administered Federal Education Funds); and (3) institutions included in the Office of Civil Rights list of such institutions that was constructed in the fall of 1978.

Specifically, the State/Special Facility substudy was intended to provide answers to five questions:

a) What are the answers to the first six Basic Survey questions (questions a-f in Section II above) for the IEPs of students served in state/special facilities?

b) What are the characteristics of students receiving special education services in state/special facilities and of the facilities in which they are enrolled?

c) How do the types of special education services specified in IEPs vary by selected student characteristics?

d) How do the format, properties, contents, and development process of IEPs vary by selected student characteristics?

e) How do the answers to the first six Basic Survey questions for students served in public schools differ from answers to the same questions for students served in state/special facilities?

The target population for the State/Special Facility Substudy was all children enrolled in a state/special facility in 46 of the 48 contiguous United States and the District of Columbia (New Mexico and Nevada were excluded) who were, as of 1 December 1978, between the ages of 3-21.

The State/Special Facility Substudy was conducted in conjunction with the Basic Survey by including a sample of 550 students who were served in a total of 73 state/special facilities (approximately 8 students were selected from each facility). With one minor exception, all procedures and schedules for collecting, processing, analyzing, and reporting data for the Basic Survey were applicable to this substudy. The exception is that the School Characteristics Questionnaire and School District Characteristics Questionnaire were replaced by a State/Special Facility Characteristics Questionnaire to collect information on the pertinent characteristics of state/special facilities required for descriptive and reporting purposes.

IV. DESCRIPTION OF THE RETROSPECTIVE LONGITUDINAL SUBSTUDY

The Retrospective Longitudinal Substudy was conducted at two levels. The first level involved a subsample of 796 of the 2,657 students included in the Basic Survey who had IEPs prepared by schools within the same LEA for two consecutive school years. This subsample was spread over 432 of the 507 schools in the Basic Survey sample. The second level involved a subsample of 61 of the 796 students included in the Level 1 subsample. These 61 students were selected by taking one student from each of 61 sample schools in 25 LEAs.

As noted previously, the Retrospective Longitudinal Substudy was designed to be an exploratory substudy to lay the groundwork for future studies of the progress made in implementing the IEP mandates of P.L. 94-142. However, the size of the Level 1 Substudy sample was adequate for computing national estimates based on the sample data in order to detect shifts of reasonable magnitude from one year to the next in the prevalence and characteristics of key properties of IEPs for the target population. On the other hand, the small size of the subsample for the Level 2 Substudy did not permit sufficient precision for making national estimates of its findings. Nevertheless, the Level 2 Substudy was adequate for providing a general indication of the relationships that it was designed to investigate.

A. Level 1 Substudy

The objective of the Level 1 Substudy was to assess changes occurring from one year to the next in: (1) the properties and contents of IEPs, (2) the process whereby they were developed, and (3) the nature and setting of the special services they specify as being provided. That is, the Level 1 Substudy answered the following question: "What is the difference between two consecutive school years in the answers to the first seven Basic Survey questions (see Section II above) for the same students?". To achieve this purpose, the IEP from the preceeding year was collected and analyzed along with the IEP for the current year for each of the students included in the subsample. Collection of data at each school was completed in conjunction with the Basic Survey, including completion of a Student Characteristics Questionnaire by the special education teacher from the preceeding year--provided he/she was still with the school system.

B. Level 2 Substudy

The objectives of the Level 2 Substudy were to supplement the information obtained in the Level 1 Substudy with information about the special education and related services actually received by handicapped students, and to assess the degree to which the services actually provided coincide with those specified in the IEPs. More specifically, the Level 2 Substudy provided answers to four questions:

1) What is the nature of the special education and related services that students in the subsample actually received?
2) How do the special education services actually received by students in the subsample compare to those specified in their IEPs?
3) How knowledgeable are parents (guardians) about the IEPs of their children (wards)?
4) What personnel provide what proportion of the IEP developmental effort?

To answer these questions, it was necessary to interview teachers and other relevant school personnel for information about the types of services each student in the sample received, or was receiving, during the two-year time frame covered by the IEPs. Pertinent information also was obtained by reviewing each student's school records, interviewing his/her parents, and studying his/her current special education program. These interviews, observations, etc., were conducted in each school district by the same data collection team that was responsible for collecting the Basic Survey data for that district. All data were collected during a single site visit.

The special education and related services received by each student during each year of the two-year period was determined on the basis of these data and compared to those described in his/her IEP. Findings of the Level 2 Substudy are important since they provide a measure or indication of the validity of the information obtained from IEPs in the Basic Survey about the type and service setting of the special services received by handicapped students.

Chapter 3

Study Questions

Twenty major questions were specified to fulfill the objectives of the National Survey of IEPs. These major questions, along with a series of related subquestions, are listed in Table 3.1. This table also references each question to the instrumentation (by instrument items) used to obtain the data to address the question. These instruments, which are discussed in Chapter 5, are included as Appendixes C through I.

Table 3.1

RELATIONSHIPS BETWEEN INSTRUMENT ITEMS AND QUESTIONS ADDRESSED BY THE IEP SURVEY

Questions to be Addressed	Related Questionnaire Items[a]
A. **Basic Survey**	
I. **What do IEPs look like?**	
1. How many pages do they contain?	EC 1
2. What proportion are legible and reasonably easy to read?	EC 2
3. What types of information headings do they contain?	EC 3(Col A)
4. What proportion of IEPs have formats that limit the number of annual goals or short-term objectives?	EC 2
5. What proportion of IEPs have formats that restrict parental approval to only a portion of the IEP?	EC 5
6. What proportion of IEPs consist of separate documents prepared:	
a. By different teachers or service sources?	EC 2
b. For purposes of placement or implementation?	EC 2
II. **What kinds of information do IEPs contain?**	
1. What proportion of IEPs contain mandated information? That is, what proportion contain:	
a. A statement of student's present level of functioning?	EC 6 (Col A)
b. Annual goals?	EC 6 (Col E)
c. Short-term objectives?	EC 7 (Col A)

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[a] EC = IEP Evaluation Checklist; SCQ = Student Characteristics Questionnaire; and; SCHQ = School Characteristics Questionnaire; SDCQ = School District Characteristics Questionnaire; SFCQ = State/Special Facility Characteristics Questionnaire; SIP = Sample Information Protocol; SP = Level 2 Substudy Protocol; SIR = Sampling Information Record; SSLF = Student Listing Form; DRF1 = Data-of-Record Form 1; DRF2 = Data-of-Record Form 2; DRF3 = Data-of-Record Form 3; DRF4 = Data-of-Record Form 4; MRS = Multiple Reporting Sheet.

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Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
d. A statement of special education/related services to be provided?	EC 3 (Col B--Items 13,14,16,27,29,30); EC 10
e. A statement of extent of participation in regular program?	EC 9
f. The projected date for initiation of services?	EC 12
g. A statement of expected duration of services?	EC 13
h. Objective evaluation criteria?	EC 7 (Col B)
i. Evaluation procedures?	EC 14
j. Evaluation schedule?	EC 15
k. A statement regarding annual evaluation?	EC 16
2. What is the distribution of IEPs by the number of goal statements contained?	EC 6 (Col E)
3. What is the distribution of IEPs by the number of short-term objectives contained?	EC 7 (Col A)
4. What proportion of IEPs contain information in all 11 of the above mandated evaluation dimensions? In 10 of the 11? In 9 of the 11? ... In only 1 of the 11?	Items specified in EC 1-16 above
5. To what extent do IEPs contain information in addition to that mandated by Section 602 of P.L. 94-142?	EC 3 (Col B)
III. How is information presented in IEPs?	
1. How are statements regarding the student's level of functioning presented?	EC 6
a. With supporting data?	EC 6 A & B
b. Without supporting data?	EC 6 A
c. With statement that special education is needed?	EC 6 C
d. With statement that special education is not needed?	EC 6 D

- continued -

Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
2. How are annual goal statements presented?	
a. With statement of expected behavior?	EC 6 E & F
b. Without statement of expected behavior?	EC 6 E
3. How are short-term objectives presented?	
a. With/without reference to an established curriculum?	EC 7 A & B/EC 7 A
b. With/without logical statement of expected behavior?	EC 7 A & B/EC 7 A
c. In specific time frames?	EC 8
4. How are statements of services presented?	
a. A placement recommendation?	EC 3 (Col B), 13
b. Services to be provided?	EC 3 (Col B), 14
c. Personnel responsible for services?	EC 3 (Col B), 16
d. Annual goals and/or short-term objectives?	EC 3 (Col B), 27 and 29
e. Recommended instructional materials, resources, strategies, or techniques?	EC 3 (Col B), 30
5. How are dates regarding the initiation of services presented?	
a. Explicitly?	EC 12 1
b. Implicitly?	EC 12 2 & 3
c. Insufficiently?	EC 12 4
6. How are the statements regarding the duration of services presented?	
a. Explicitly?	EC 13 1
b. Implicitly?	EC 13 2 & 3
c. "As long as needed"?	EC 13 4
d. Insufficiently?	EC 13 5

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Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
7. How are evaluation statements presented?	
a. Procedures explicit/implicit/cannot be determined?	EC 14 1 & 2; EC 14 3/EC 14 4
b. Schedules explicit/implicit/cannot be determined?	EC 15 1/EC 15 2 & 3; EC 15 4
8. How many objectives are presented in terms of an annual evaluation?	
a. Some?	EC 16 2
b. All?	EC 16 1
c. None?	EC 16 3
d. Cannot be determined?	EC 16 4
9. What proportion of IEPs contain a statement of the rationale for the student not participating in the regular program?	EC 11
IV. Who participates in the development and approval of IEPs?	
1. What is the frequency distribution of IEPs by the number of signatures they contain, and by the titles of the signers (e.g., teachers, parents, principals, counselors, psychologists, students)?	EC 4 (Col B)
2. What is the frequency distribution of IEPs by the number and titles of personnel listed on the IEP as having participated in the IEP process?	EC 4 (Col A)
3. For what proportion of IEPs did parents participate in the IEP process?	SCQ 4f
4. For what proportion of IEPs did students participate in the IEP process? For what proportion have students discussed their IEPs with a teacher, counselor, or other school representative?	SCQ 4g and 4h
5. For those IEPs in which parental participation was indicated, in what proportion of IEPs did parents participate by:	
a. Signing the IEP?	SCQ 4a
b. Verbally (in person or by telephone) approving the IEP?	SCQ 4b

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Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
c. Refusing to approve the IEP on the basis of their considering the IEP inappropriate?	SCQ 4c and EC 5
d. Discussing the completed IEP with a teacher, counselor, or other school representative?	SCQ 4d
e. Meeting with the IEP committee to discuss the developed IEP?	SCQ 4e
f. Participating in the development of the IEP; that is, sitting with the IEP committee during the development process and provided inputs to the IEP?	SCQ 4f
g. Various combinations of the above?	SCQ 4
V. What types of special education and related services are specified in IEPs?	
1. In what academic and functional areas are specific education services provided, singularly and in various combinations thereof?	EC 7 (Cols A & D)
2. What kinds of, and how many related services are provided, singularly and in various combinations thereof?	EC 10
3. In what academic and functional areas is there a determination that special education is needed/not needed because of the present level of functioning?	EC 6 A, C & D
4. In what academic and functional areas was supporting data listed for present-level-of-functioning statements?	EC 6 B
5. In what academic and functional areas does a goal statement reflect a service which matches a statement of need?	EC 6 C and EC 6 E
6. In what academic and functional areas does an objective reflect a service which matches a goal statement?	EC 6 E and EC 7 A
VI. How informative and internally consistent are IEPs?	
1. What proportion are internally consistent in that at least one goal relates to at least one objective that relates to at least one area of indicated need?	EC 6 (Cols C & E) EC 7 (Col A)

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Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
2. What proportion meet the requirements of four informativeness/internal consistency levels?	Various combinations of EC 1-16
a. What proportion are classified as incomplete information documents?	
b. What proportion are classified as minimally informative documents?	
c. What proportion are classified as informative and internally consistent documents?	
d. What proportion are classified as exceptionally informative and internally consistent documents?	
VII. In what service settings, and for what proportion of the academic week, do students receive special education services?	
1. What proportion of the students are served in, through, or on:	
a. A resource room?	SCQ 2a; DRF4 1a
b. A self-contained special education class?	SCQ 2b; DRF4 1b
c. A hospital program?	SCQ 2d; DRF4 1d
d. A homebound program?	SCQ 2e; DRF4 1e
e. The regular classroom (by specific academic and functional area)?	EC 7 (Col D); SCQ 2c; DRF4 1c
f. A pullout basis at one or more other schools?	DRF2 6a; SSLF 2; MRS I; DRF4 1
g. Various combinations of the above?	EC 7 (Col D); SCQ 2
2. What is the distribution of the number of hours per week that students are served in each of the settings listed in 1 above? For what percent of the week is the student assigned to special education?	SCQ 2 (Col D), EC 9
3. In what academic and functional areas is there specification of at least one objective to be met in the regular classroom?	EC 7 D

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Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
VIII. What are the characteristics of students who have IEPs and are enrolled in public schools, and of the schools and school districts in which they are enrolled?	
1. How are the students who receive special services distributed by:	
a. Selected school and school district characteristics (see VIII.3 and VIII.5 below)?	SCHQ and SIR 1
b. Age, grade level, race, and sex?	SCQ 1
c. Nature and severity of handicapping condition?	SCQ 3
d. Whether or not they have IEPs, and the status of incomplete IEPs?	DRF2 4
e. Whether or not their IEPs are available at their school of enrollment?	SCQ (marginal notation); DRF2 6.a & b
f. Source of service funding (94-142, 89-313, Title I, other)?	EC Funding Source; DRF2 5
g. Various combinations of the above?	SCQ 1, 3, and 4
2. What proportion of regular and special schools serve handicapped students?	School Data Sheets
3. How are the schools in which students are served distributed by:	
a. Whether or not they prepare IEPs?	SCHQ (marginal notations)
b. Whether or not IEPs are kept at the school?	SCHQ (marginal notations)
c. Grade-level organization?	SIP
d. Size of student enrollment?	SIP
e. Percent of student enrollment qualifying for special education services?	SIP
f. Type of school (regular or special; day or residential)?	SCHQ 1
g. Resources available?	SCHQ 3; SDCQ 1, 2, and 3
h. Urban/suburban/rural location?	SCHQ 2

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Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
i. Whether or not they are members of special intermediate or cooperative districts for purposes of providing special education services?	SDCQ 3
j. Percent of handicapped students for which special education services are contracted by the school district to a private school or institution within and outside the geographic boundaries of the school district?	SDCQ 4 a & b
k. Various combinations of the above?	SCHQ 1, 2, and 3; SDCQ 1, 2, and 3
4. What proportion of school districts serve handicapped students?	School Data Sheets
5. How are the school districts in which students are served distributed by:	
a. Whether or not they prepare IEPs?	SDCQ (marginal notations)
b. Size of student enrollment?	SIP
c. Resources available?	SDCQ 1, 2, and 3
d. Number of intermediate districts or cooperative arrangements with other districts that have been established to serve the handicapped?	DRF1 2
e. Whether or not all their handicapped students are served through intermediate districts or cooperative arrangements with other schools?	DRF1 3
IX. How do the types, service settings, and amounts of special education services specified in IEPs vary by selected student and school characteristics?	
1. How do the answers to questions V and VII above vary by student age and/or grade levels, service setting, nature of student disability, and nature of parental and student participation in the IEP process?	EC 7 (Cols A & D), and 10; SCQ 1a & b, 2, 3, and 4
2. How do the answers to questions V and VII above vary by school type, school size, district size, resource availability levels, and urban/suburban/rural location?	EC 7 (Cols A & D), and 10; SCHQ 1, 2, and 3; SDCQ 1, 2, and 3; SIP 3.b

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Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
X. How do the formats, contents, properties, and development processes of IEPs vary by selected student, school, and school district characteristics?	
1. How do the answers to questions I-IV and VI above vary by student age and/or grade levels, service setting, and severity of student's handicapping condition?	EC 1-16; SCQ 1 a & b, 2 and 3
2. How do the answers to questions I-IV and VI above vary by school type, school size, district size, resource availability levels, and urban/suburban/rural location?	EC 1-16; SCHQ 1, 2, and 3; SDCQ 1, 2, and 3; SIP 3.b
B. State/Special Facility Substudy	
XI. What are the answers to questions I-VI above for the IEPs of students served in state/special facilities?	Questionnaire items listed for I-VI above
XII. What are the characteristics of students receiving special education services in state/special facilities and of the facilities in which they are enrolled?	
1. How are the students who receive special services distributed by:	
a. Selected facility characteristics (see XII.2 below)?	SFCQ
b. Age, grade level, race, and sex?	SCQ 1
c. Nature and severity of disability?	SCQ 3
2. How are the state/special facilities in which students are served distributed by:	
a. Type (state-supported or state-operated)?	SFCQ 1
b. Purpose?	SFCQ 2
c. Size?	SFCQ 5
d. Relationship to SEA (accredited or supervised by)?	SFCQ 7
e. Laws or legal mandates for which IEPs are written?	SFCQ 8

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Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
XIII. How do the types of special education services specified in State/ Special Facility IEPs vary by selected characteristics?	
1. How does the answer to question V above vary by student age and severity of handicap?	EC 7 (Cols A & D) and 10; SCQ 1a and 3
XIV. How do the format, properties, contents, and development process of IEPs vary by selected student characteristics?	
1. How do the answers to questions I-IV and VI above vary by student age and severity of handicap?	EC items indicated in I-V; SCQ 1a and 3
XV. How do the answers to questions I-VI above differ for students served in public schools (regular and special schools) from answers to the same questions for students served in state/special facilities?	EC items indicated in I-VI
C. Retrospective Longitudinal Substudy: Level 1	
XVI. What is the difference between two consecutive school years in the answers to questions I-VII above for the same students?	EC items indicated in I-VII
D. Retrospective Longitudinal Substudy: Level 2	
VIII. What is the nature of the special education and related services that students in the subsample actually received?	
1. How was the present level of educational performance determined?	SP
2. What special education services were received during each of two consecutive years?	SP
3. What related services were received during each of two consecutive years?	SP
4. In what setting were these services received during each of two consecutive years?	SP

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Table 3.1 (continued)

Questions to be Addressed	Related Questionnaire Items
XVIII. How do the special education services actually received by students in the subsample compare to those specified in their IEPs?	
1. How does the assessment process applied compare with that specified in IEPs, for each of two consecutive years?	SP
2. How do the special education services received compare to those specified in IEPs, for each of two consecutive years?	EC 6 (Col E); EC 7 (Cols A & D); SP
3. How do the related services received compare to those specified in IEPs, for each of two consecutive years?	EC 10; SP
4. How do the settings where services were received compare to those specified in IEPs, for each of two consecutive years?	EC 3 (Col B.13); SP
5. How do procedures for evaluating attainment of instructional goals and objectives compare to those specified in IEPs, for each of two consecutive years?	SP
6. What are the reasons for any differences between services actually received and services specified in IEPs, for each of two consecutive years?	SP
XIX. How knowledgeable are parents (guardians) about the IEPs of their children (wards)?	
1. Are parents aware that their children have IEPs?	SP
2. How familiar are parents with their children's IEPs?	SP
3. To what extent do parents agree that their children's IEPs are appropriate for meeting their children's needs?	SP
4. To what extent to parents feel that their children are receiving all of the services specified in their IEPs?	SP
XIX. What personnel provide what proportion of the IEP developmental effort?	SP

Chapter 4

Sampling

The National Survey of IEPs utilized a national probability sample of districts, schools/facilities, and students (i.e., every member of these populations had a known or determinable positive chance of being selected into the sample). The sample was designed so that national estimates of the answers to study questions could be made from the sample data. The sample design also permitted estimates of answers to major questions for such selected subpopulations as students enrolled in: regular or special schools, in schools that are located in one of four type-of-community classifications, or schools that are in a particular student enrollment-size classification.

The intent of this chapter is to overview the sampling procedures used in this survey (Section I), to introduce sampling error considerations related to survey findings (Section II), and to present descriptive information about the selected sample (Section III). In-depth discussion of the sample selection procedures has been relegated to Appendix A; analysis concerns directly related to the sample design (e.g., weight adjustments and standard error computation) are presented in Appendix B.

I. OVERVIEW OF SAMPLING PROCEDURES

A. General

The basic objective of the National Survey of IEPs was to develop a profile of the properties and contents of IEPs, as part of an overall effort to assess the adequacy of current regulations for fulfilling the Congressional Mandate of P.L. 94-142. To accomplish this, a valid probability sample of 3,243 eligible handicapped students was selected in January-April of 1979. Data were collected, analyzed, and reported for 3,207 of these students. The 36 nonrespondents were primarily associated with the nonreceipt of letters of permission from parents (as required by several school districts) and/or the inability of the field staff to locate an IEP that was said to exist for a given sample student. In recognition of differences in funding sources and the mechanism for delivery of services, the IEP study sample was divided among the three components indicated in Table 4.1.

Table 4.1

ALLOCATION OF IEP STUDY SAMPLE TO POPULATION DOMAINS

Component	Population Domain	Eligible Sample	Respondents
Regular School	Handicapped students served in regular elementary and secondary public schools	2,150	2,126
Special School	Handicapped students served in public special education schools for the handicapped	537	531
Facility	Handicapped students served in non-LEA administered schools and facilities.	556	550

In arriving at this allocation, consideration was given to a design that would minimize the variance of proposed estimators (e.g., the percent of IEPs with a particular characteristic or property), while being feasible to implement within the level of funding that was available for conducting the survey. Since the major focus of the survey was on handicapped students served in LEA-administered schools, the highest priority in study design was given to the School Component (i.e., the combination of regular school and special school components). In this regard, the School Component is referred to as the Basic Survey, whereas the Facility Component was viewed as an option and was termed the Facility Substudy. Further, provision was made to subsample 828 of the 2,687 eligible students in the sample selected to support the Basic Survey in order to retrospectively obtain IEPs for successive years and thus measure change and, for 61 of these latter subsample students, to obtain detailed information on the services actually provided over the two-year period. These activities, which were to be implemented in conjunction with both the Basic Survey and the Facility Substudy, were labeled as Level 1 and Level 2, respectively, of a Retrospective Longitudinal Substudy. Of the 828 students selected for the Level 1 Substudy, 817 were eligible and data were collected for 796. Data were gathered for all of the 61 students selected for the Level 2 Substudy.

The sampling strategy proposed for the Basic Survey and Retrospective Longitudinal Substudy involved a single, consolidated multistage cluster design. This design approach was dictated by the lack of a national frame of handicapped students, and was supported by the need for a cost-effective and operationally manageable allocation of the ultimate student sample. Specifically, the School Component was supported by a stratified three-stage cluster design; public school districts were sampled at the first stage, schools at the second, and handicapped students at the third. Such an approach had the further advantage of capturing the multidimensional administrative controls that are imposed on the content of the ultimate IEP.

The Facility Component (i.e., the Facility Substudy) was supported by a separate stratified two-stage cluster design; facilities were sampled at the first stage, and handicapped students were sampled at the second stage. Facilities were not nested into the second-stage school component frame because of the small number of such facilities and the fact that a suitable sampling frame of state/special facilities was not available during the design phase, thus precluding the prior investigation of the distribution of facilities in various types of school districts.

The procedures used to select the School Component samples are presented in Subsection B; the selection of the Facility Component samples is discussed in Subsection C. Within each subsection, the discussion of samples is organized in accordance with the design hierarchy (i.e., districts, followed by schools and students for the School Component; facilities followed by students for the Facility Component). The proposed sampling procedures, as detailed in the final report for the design phase of this project, were altered slightly during the implementation phase of the study.[1] A listing of these modifications is presented in Subsection D. A summary table of sample sizes and response rates is presented by basic analysis units in Subsection E.

B. School Component

As stated above, the School Component was supported through a single consolidated three-stage cluster design having public school districts at the first stage, schools at the second stage, and handicapped students at the third stage.

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[1] Pyecha, J. N., et al. Design of a National Survey of Individualized Education Programs (IEPs) for Handicapped Children. Research Triangle Park, NC: Research Triangle Institute, November 1978. (Chapter 4 and Appendix L)

1. District Sampling Procedures

Three general activities were involved in selecting the district sample for the Basic Survey: (a) construction of the sampling frame; (b) construction of strata on the frame; and (c) selection of Basic Survey sample and Level 2 subsample.

a. Sampling Frame

RTI obtained from the Curriculum Information Center (CIC)[2] a machine-readable data file containing school and school district enrollment information for the 1978-79 school year. Using these CIC data and information obtained from other sources (e.g., BEH publications and Bureau of Census data tapes), a sampling frame containing all public school districts within the geographic confines of the study was constructed (i.e., districts in Alaska, Hawaii, New Mexico, and all territorial properties were excluded). Included on this frame for each district were: (1) the number of schools in the district (by type; i.e., special education, vocational, adult, and other); (2) the district enrollment; (3) sum of enrollments of all schools in district (by type); (4) an indicator as to whether or not the district is located in the inner portion of a Standard Metropolitan Statistical Area (SMSA), in the remainder of an SMSA, or in a non-SMSA; (5) state and district identifiers (including names and addresses of superintendents and school principals); (6) a count of the number of subdistricts administered at least in part by each district; (7) the census region in which the district is located; (8) the estimated number of handicapped students enrolled, by school type (regular versus special); and (9) a measure of the level of special education service provided (see Table A.3 in Appendix A for definitions of service levels).

b. Stratification

Stratification was used in selecting the district sample to better ensure: (1) adequate student sample sizes from both regular and special schools and (2) distribution of the sample to reflect dispersion with respect to geographic location, district size, special education services offered, and urbanicity.

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[2] Curriculum Information Center, Incorporated, 600 Ross Building, 1726 Champa Street, Denver, Colorado, 80202.

The study design called for the selection of two regular and one special school (when present) in each sample district, and subsequently to select five handicapped students at each regular school and eight handicapped students at each special school. (Selection of a fixed number of students was highly desirable from an operational viewpoint since student samples would be selected at sample schools by RTI field staff scattered throughout the nation.) To better ensure these sample sizes, districts were stratified on the presence/absence of special schools in the district. Also, a special "small stratum" of districts (i.e., districts having fewer than two regular schools and/or fewer than 300 students) was established to control the selection of districts that might not have at least two regular schools enrolling at least five handicapped students.

Indirect stratification was used to ensure dispersion of the district sample with respect to geographic location, urbanicity, presence of varying amounts of special education services in the district, and magnitude of student enrollment. To accomplish this, a device known as zoning was used on each of the partial frames (strata) discussed above. First, each partial frame was sorted by the four census regions. Second, within each census region and partial frame, districts were sorted by nine district size categories. To minimize changes across census region-district size boundaries, ordering was alternated smallest to largest, largest to smallest, etc. Third, within each census region-district size category on a partial frame, districts were ordered by the four service levels (again in alternating fashion). Fourth, within each category (census region-district size-service level) on a partial frame, districts were ordered (alternately) by the three SMSA levels. Finally, each of these categories on a partial frame was ordered by a special composite size measure that was developed to permit the selection of a self-weighting student sample by type (e.g., each student has an equal probability of selection) by school type (see Section II.A.4 of Appendix A for a description of this measure). Four large school districts, which were to be selected with certainty (i.e., a probability of one), were each placed in a separate strata. In all, 110 indirect and 8 broad direct strata were formed on the district frame.

c. Selection

Two sample districts were selected without replacement from each of 114 of the 118 strata, using probability proportional to the estimated district size measure. One district was selected from each of the remaining four strata of self-representers. Thus, a total of 232 districts were selected for the Basic Survey.

The sample design called for the selection of 25 of the Basic Survey districts for inclusion in the Level 2 Retrospective Longitudinal Substudy. To better control for geographic dispersion, district size, service level, and urbanicity in making this selection, the 118 strata developed for the Basic Survey sampling frame were partitioned (collapsed) into 25 strata. A single district was then selected at random from the School Component sample districts associated with each of these 25 strata.

Of the 232 districts selected to support the school component, 22 districts failed to cooperate and 2 districts were ineligible (one turned out to be a state/special facility and the other one did not serve handicapped students). All of the Level 2 districts were respondents. District nonresponse was analyzed over the levels of each control variable used to form each of the indirect strata on the district frame in order to determine if nonresponse was occurring in a nonrandom fashion. No such tendency could be supported.

2. School Sampling Procedures

Procedures for obtaining the school sample are discussed in three parts: (a) construction of the frame; (b) stratification of the sampling frame; and (c) selection of the sample.

a. Sampling Frame

Each district selected into the Basic Survey sample was asked to complete a School Data Sheet that included the number of handicapped students in each school in the district and the identification of any special schools that employed only a pull-out program from regular schools (students in such programs are assigned for enrollment purposes to the regular school). These data were used with the CIC data file to construct the school sampling frame.

A list of the schools in each sample district was made from the CIC file, as updated by the information obtained from districts through the School Data Sheets (i.e., schools designated as closed or not serving handicapped students were deleted and new schools were added). The revised frame included school identifiers (name, school ID, district and subdistrict ID [if applicable], and state location), grade range, employment size, type (regular or special), whether or not school had current year IEPs for its handicapped students, and whether or not special schools served only handicapped students on a pull-out basis from regular schools.

b. Stratification

The school frame in each sample district was first stratified (separate frames formed) by school type. Each of these subframes was then ordered by lowest grade taught, by highest grade taught, and by enrollment. Strata (zones) were formed on each subframe so as to contain approximately an equal estimated number of enrolled handicapped students in each strata. The number of zones per subframe was set equal to the district's allocation of sample schools of the associated type (the sample design called for an average of two regular schools and one special school per district).

c. Selection

One school was selected from each zone on each subframe using probabilities proportional to the estimated number of enrolled handicapped students. In all, 519 schools were selected; 443 of these schools were regular schools and 76 were special schools. Data (IEPs and student and school questionnaires) were received and analyzed from 507 (437 regular and 70 special) of these 519 schools.

3. Sampling Procedures for Basic Survey Students

Procedures for selecting the student samples are discussed in terms of the same three activities as delineated for the discussion of school district and school sampling procedures.

a. Sampling Frame

The principal of each school in the sample was asked to prepare a list of all handicapped students who were enrolled in the school as of 1 December 1978. This list, which was to be prepared in advance of the site-visit team's arrival in the school district, also included for each student the student's birthdate, whether or not a current year IEP was available, and the name of the special education teacher who was most knowledgeable about the current year IEP. In a few isolated cases, such lists had to be constructed by RTI field staff using school records. To construct the final sampling frame, the lists were screened to remove duplicate names, age-ineligibles (students outside the 3-21 age range), and students for whom current year IEPs had not been prepared.

b. Stratification

No direct stratification was used on the student frames; however, control over the composition of each student sample was exercised by ordering the student listing by the special education teacher associated with each student. Systematic sampling of such ordered lists tended to maximize the number of distinct special education teachers associated with sample students (it was felt that IEPs prepared by the same teacher would tend to have similar properties).

c. Selection

The study design called for the selection of a average of five eligible handicapped students from each regular school and an average of eight eligible handicapped students at each special school. However, there are certain survey economics associated with the allocation of a fixed student sample size to each school; i.e., the employment of simpler sampling procedures in the field work and the removal of the need for field staff to interact with sampling staff at RTI in order to arrive at a specific sample size allocation at each school. As a result, a decision was made to select exactly five students at every regular school and exactly eight students at every special school. This decision resulted in a slight increase in the variation in the ultimate student sampling weights and, hence, in a probable reduction in precision levels associated with parameter estimates.

The student sample was selected at each school by RTI field staff using a circular systematic selection strategy with a random start point. A total of 2,705 students were selected, 2,162 of whom were enrolled in regular schools and 543 of whom were enrolled in special schools. Basic Survey data were collected for 2,657 of these students. The remaining 48 students included 18 ineligibles (identified at RTI after the student sampling lists had been received from field staff) and 30 students for whom letters of permission could not be obtained from parents and/or field staff could not locate an IEP that was said to exist.

4. Sampling Procedures for Level 1 Students

For each Basic Survey sample student, a determination was made by RTI field staff as to the presence or absence of an IEP for the previous year. The teacher most knowledgeable about each previous year IEP (when such an IEP was available) was also recorded. If more than two Level 1 eligible students were identified in a school, two students were selected at random and without replacement. The order in which these students were selected was noted for use in selecting students for the Level 2 sample. If two or less students were so identified, they were automatically selected into the sample.

In all, 828 of the Basic Survey students at 436 of the schools were selected into the Level 1 Substudy. To qualify as a respondent, the student had to be eligible and both the previous year IEP and Student Characteristics Questionnaire (in addition to these documents for the current year) had to be available. A total of 796 students qualified as respondents; 675 of these students were enrolled in regular schools and 121 were enrolled in special schools.

5. Sampling Procedures for Level 2 Students

Since only unweighted analyses were to be conducted with Level 2 data, this sample was selected more informally from the Basic Survey sample schools included in the 25 school districts selected for the Level 2 Substudy (see subsection 1.c above). A total sample of 53 regular and 8 special schools were included in these districts. One Level 2 student was selected from each of these schools as follows:

a) If the school had two Level 1 students, the student selected first into the Level 1 sample was selected.

b) If the school had only one Level 1 student, this student was selected.

c) If the school did not have a Level 1 student, one of the school's Basic Survey sample students was selected at random.

In all, 61 students were selected, all of whom were respondents.

C. Facility Component

The Facility Substudy was supported through a separate two-stage cluster design having facilities at the first stage of sampling and handicapped students at the second stage.

1. Facility Sampling Procedures

For discussion purposes, this task consisted of five activities: (a) construction of sampling frame; (b) stratification for selection of initial sample; (c) selection of initial sample; (d) stratification for selection of final sample; and (e) selection of final sample.

a. Construction of Sampling Frame

The following steps were involved in constructing the sampling frame:

1) Lists of special education facilities were obtained separately from CIC and the Office of Civil Rights (OCR).

2) These frames were hand-matched based on facility name, address, city, and zip code to obtain a combined frame in which each facility was identified as being on both files (CIC-OCR matched), on the CIC file only, or on the OCR file only.

3) The combined frame was then handmatched with the USOE 1977 "437 file" of institutions receiving P.L. 89-313 monies (i.e., institutions with a program code 2 and an agency type 2) to create a revised combined frame with each listed facility identified as being in one of four subframes. These four subframes are defined as the following four files: (a) the 437 file, (b) both the CIC and OCR files only (CIC-OCR match-only), (c) the CIC file only (CIC-only), and (d) the OCR file only (OCR-only).

4) This revised combined frame was then purged of ineligibles (i.e., facilities in Alaska, Hawaii, New Mexico, and Nevada;[3] facilities listed on CIC files that are administered by LEAs and were thus eligible for the School Component sample; and 52 facilities that were participating in an ongoing BEH study).

The end product of these efforts was the Facility Component sampling frame.

b. Stratification for Selection of Initial Sample

There was a concern that many of the facilities listed on the sampling frame might no longer be in existence or could not be located with the information available on the frame. Hence, a two-stage selection procedure was employed. At the first stage, 155 facilities were selected and screened to verify that they were currently in operation. These screening contacts were made at the state level in the states in which the facility was located (based on addresses listed in the frame). The second stage involved selecting a subsample of 79 of the 123 facilities that survived the Stage 1 screening.

To select the Stage 1 sample, each of the four subframes was stratified. The 437 subframe was separated into four census regions and then ordered within region by the amount of grant received (low-to-high ordering was employed in the first region, high-to-low in the second, low-to-high in the third, and high-to-low in the fourth). Fifty-one strata of approximately equal total grant amounts were sequentially formed on the ordered frame. The number of strata was set equal to the desired sample size for the subframe.

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[3] Nevada decided to not participate in the State/Special Facility Substudy.

Each of the other three subframes was separated into four census regions and then ordered alphabetically by state within each region (grant amounts were not available for these facilities). On each subframe, strata containing an approximately equal number of facilities were then formed. The number of strata for each subframe, which were also based on desired sample sizes, were as follows: 22 for CIC-OCR match only; 24 for CIC only; and 58 for OCR only.

c. Selection of Initial (Stage 1) Sample

One facility was selected at random from each of the 155 strata on the combined frame.

d. Stratification for Selection of Final (Stage 2) Sample

Of the 155 facilities selected for initial screening, 32 were deemed ineligible (2 from the 437 file and 30 from the other three files). Most of the ineligible facilities were so classified because they either no longer existed or they did not serve students in the 3-21 age range.

The 155 eligible facilities initially selected for screening were stratified by file location, i.e., 437 subframe versus the non-437 subframes (the other three subframes combined). Each of the three non-437 strata were further stratified by three time periods.[4] Within each of the three time-period strata, additional strata were formed to control for the selection of facilities by their residential/nonresidential status and by the types of handicaps associated with their students (e.g., schools for blind or deaf). Indirect stratification was applied to the facilities in the second time-period strata by ordering the facilities by their enrollment size and sequentially forming substrata that had approximately equal size measure (the number of such substrata for each stratum was equal to the desired sample size from the stratum).

e. Selection of Final Sample

All of the 49 eligible facilities on the 437 file were selected with certainty. Thirty facilities were selected from the eligible facilities on the non-437 files. (See Table A.26 and its related discussion in Appendix A for details of selection procedure.) Of the selected 79 facilities, 71 were classified as respondents (47 of the 49 "437" facilities and 24 of the 30 "non-437" facilities). Two of the "nonresponding" facilities that agreed to participate in the study but did not develop IEPs for their students and were thus considered to be ineligible for the Facility Student Component.

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[4] The process of screening the 155 Stage 1 facilities required much more time than anticipated; i.e., a period of two to three months. During this period RTI field staff were available for collecting data from the selected facilities. To keep the field operation in motion, sampling of facilities was done in three time stages according to established cutoff times. For example, the first stage sample was selected on or about 1 February from those facilities that had by that time been screened and determined to be eligible. The second and third stages were conducted one and two months later, respectively.

2. Student Sampling Procedures

The selection of eight students at each of the facilities in the sample was accomplished utilizing the same procedures used to select the Basic Student sample at each special school (see subsection B.3 above). All of the 556 students selected into this sample were found to be eligible, but 6 were viewed as nonrespondents because they did not have both a current year IEP and a completed Student Characteristics Questionnaire.

D. Deviations Between Implemented and Proposed Sample Designs

For the most part, only minor alterations were made to the proposed sample design during the implementation phase of the study. These changes included:

1) Two states refused to participate in the study--New Mexico prior to sample selection and Nevada after sample selection.
2) A stratum of "small" districts (i.e., less than 300 student enrollment and/or no more than two regular schools) was constructed and used to augment the district sample to preserve the integrity of the School Component sample sizes.
3) A composite study size measure for districts was implemented in the School Component to better encourage the realization of a self-weighting student sample (by school type), while overrepresenting handicapped students attending special schools and allowing the final fixed number of students to be selected at each sample school to vary by school type.
4) The allocation (and selection) of the school sample proceeded on a flow basis as information on consent and revised enrollment data were received from sample districts. In all, four "batches" of this information were involved (approximately 50 districts per batch).

5) An attempt was made to select two Basic Survey students into the Level 1 Longitudinal Substudy subsample (instead of one proposed in the sample design). This modification was made because of a concern that at least one Level 1 eligible student might not be included in the Basic Survey student sample at each of the sample schools, and served to guarantee the integrity of the Level 1 student sample size.

6) The target population for the Facility Substudy was redefined to include all non-LEA administered institutions in the 48 contiguous United States serving handicapped children aged 3-21. This change was necessitated by the inability to establish the funding source of special education institutions listed on current directories.

7) The proposed facility frame (based on CIC and Office of Civil Rights Directories) was augmented by the USOE 1977 "437" file to reflect current P.L. 89-313-funded establishments.

8) At BEH request, the facility frame was purged of state-operated or state-supported schools for the handicapped that had been selected for participation in another BEH survey of facilities receiving P.L. 89-313 funding. In all, 52 such facilities were deleted from the frame.

9) The facility sample was drawn in two stages. In the first stage, 155 facilities were selected and their associated states contacted to secure additional relevant information on the nature and status of each initial sample member (e.g., whether or not the facility was still in operation and the number and age ranges of children enrolled). In the second stage, a subsample of 79 facilities was selected from among those Stage 1 sample facilities that still appeared to be "eligible." This screening was necessary in order to preserve the integrity of the ultimate facility sample size (and the associated sample of students at these facilities) in light of recognized deficiencies in the sampling frame that was available to RTI for the facilities component.

E. Summary of Sample Sizes

Varying degrees of nonresponse and ineligibility were experienced in study samples. Table 4.2 provides specific details by analysis unit. The

Table 4.2

SAMPLE SIZES SELECTED TO SUPPORT IEP SURVEY

Analysis Unit	Sample Size Selected	Status of Sample Size		
		Responding	Non-responding	Ineligible
District	232	208	22	2
School	519	508[a]	9	2
Regular	443	437[a][c]	5	1
Special	76	71[a][c]	4	1
Facility	81	73[b]	4	4
Basic Survey Student	2705	2657	30	18
Regular	2162	2126	24	12
Special	543	531	6	6
Level 1 Student	828	796	21	11
Regular	703	675	18	10
Special	125	121	3	1
Level 2 Student	61	50	0	11
Regular	53	42	0	11
Special	8	8	0	0
Facility Student	556	550	6	0

[a] Figure includes one regular school that served handicapped students but did not develop any IEPs. Since the school did not have IEPs, its data were dropped from further analyses.

[b] Figure includes two facilities that served handicapped students but did not develop any IEPs.

[c] One of the special schools was subseqently reclassified as a regular school based on information collected during the study. The final count of regular and special schools in the sample was 437 and 70, respectively.

response rates for the study are quite adequate and there is no reason to suspect that study findings have been systematically biased by nonresponse. However, the potential for the realized level of nonresponse to systematically bias the sample results is discussed at some length in Appendixes A and B.

II. SAMPLING ERROR CONSIDERATIONS

The results of any survey based on a sample of a population (rather than on the entire population) are subject to sampling variability. The sampling error (or standard error) provides a measure of the range within which a sample estimate can be expected to fall a certain proportion of the time. For example, it may be estimated that 86 percent of all IEPs contain a statement of the student's present level of educational performance. If it is calculated that the sampling error for this estimate was 2 percentage points, then according to the Central Limit Theorem, 95 percent of all possible samples of that same size selected in the same way would yield estimates of between 82 percent and 90 percent (that is, 86 percent ± 2 standard error units) for the percent of IEPs that contain performance level information. That is, one would be 95 percent sure that the true population figure (percentage) is within the interval of 82 to 90 percent. The following probability statements are associated with some of the more commonly used standard error intervals:

a) About 68 percent of the time the true population figure will fall within ± 1 SE of the sample figure.
b) About 90 percent of the time the true population figure will fall within ± 1.6 SE of the sample figure.
c) About 95 percent of the time the true population figure will fall within ± 2 SE of the sample figure.
d) About 99 percent of the time the true population figure will fall within ± 2.6 SE of the sample figure.

The decision to obtain information from a sample rather than from the entire population is made in the interest of reducing costs, both in terms of money and the burden on the population to be surveyed. The particular sample design chosen is the one which is expected to yield the most accurate descriptive information regarding key properties of IEPs for the least cost. It is important to realize that, other things being equal, estimates based on small sample sizes are subject to larger standard errors than those based on large samples. Also, for the same sample design and sample size, the closer a percentage is to 0 or 100, the smaller the sampling error.

Details of the standard error computation for the survey are presented in Appendix B.

III. SAMPLE DESCRIPTIONS

The tables presented in this section provide descriptive information about the Basic Survey and State/Special Facility Substudy samples. Similar information about the Retrospective Longitudinal Substudy, which is a subsample of the Basic Survey sample, is presented with the results of that substudy in Volume IV. These descriptive data, which show the distribution of various sample units (districts, schools/institutions, or students) by major classification groups, indicate that the sampling strategy was extremely successful in obtaining the desired sample dispersion.

A. Basic Survey Sample

Table 4.3 shows the distribution of districts, schools, and students over United States Office of Education Regions; Tables 4.4 and 4.5 presents the distribution of school districts over size-of-enrollment and per-pupil expenditure categories, respectively; Tables 4.6 and 4.7 provide distributions of sample schools by size and type of community in which they are located (Table 4.6) and by their grade-level organization and designation as regular or special schools (Table 4.7); and Tables 4.8-4.11 show the distribution of sample students by age and school type (Table 4.8), by grade level and sex (Table 4.9), by race (Table 4.10), and by the nature and severity of handicapping condition (Table 4.11).

B. State/Special Facility Substudy Sample

Table 4.12 shows the distribution of facilities in the sample by three size-of-enrollment categories; Table 4.13 gives the distribution of facilities by their primary purpose. Students in the facility sample are described in Tables 4.14-4.17 by grade level and sex (Table 4.14), age (Table 4.15), race (Table 4.16), and nature and severity of handicapping condition (Table 4.17).

Table 4.3

DISTRIBUTION OF BASIC SURVEY SAMPLE UNITS BY USOE REGION

United States Office of Education (USOE) Regions	Number and Percent of Sample Units											
	Districts		Schools				Students					
			Regular		Special		Regular		Special		Totals	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Region I	14	6.7	30	6.9	4	5.6	150	7.1	23	4.3	173	6.5
Region II	19	9.1	43	9.9	1	1.4	201	9.4	8	1.5	209	7.9
Region III	22	10.6	43	9.9	10	14.1	214	10.1	77	14.5	291	11.0
Region IV	42	20.2	92	21.1	19	26.8	458	21.5	145	27.3	603	22.7
Region V	42	20.2	87	20.0	13	18.3	425	20.0	92	17.3	517	19.5
Region VI	18	8.7	37	8.5	6	8.4	182	8.6	48	9.0	230	8.7
Region VII	16	7.7	32	7.3	4	5.6	147	6.9	32	6.0	179	6.7
Region VIII	7	3.4	15	3.4	3	4.2	68	3.2	24	4.5	92	3.5
Region IX	17	8.2	36	8.3	4	5.6	176	8.3	32	6.0	208	7.8
Region X	11	5.3	21	4.8	7	9.9	105	4.9	50	9.4	155	5.8
Total	208	100.0[a/]	436	100.0	71	100.0[a/]	2,126	100.0[a/]	531	100.0[a/]	2,657	100.0[a/]

[a/] Percents do not total 100 due to rounding error.

Table 4.4

BASIC SURVEY SAMPLE SCHOOL DISTRICTS CLASSIFIED BY SIZE OF STUDENT ENROLLMENT

Size of Enrollment	Districts in Sample	
	Number	Percent
1-299 or less	4	1.9
300-599	9	4.3
600-999	9	4.3
1,000-2,999	38	18.3
3,000-4,999	28	13.5
5,000-9,999	45	21.6
10,000-24,999	39	18.8
25,000 or more	36	17.3
Total	208	100.0

Table 4.5

BASIC SURVEY SAMPLE SCHOOL DISTRICTS CLASSIFIED BY LEVEL OF ANNUAL PER-PUPIL EXPENDITURE

Annual Per-Pupil Expenditure Level	Districts in Sample	
	Number	Percent
1,099 or less	29	13.9
1,100-1,299	33	15.9
1,300-1,499	43	20.7
1,500-1,699	35	16.8
1,700-1,899	24	11.5
1,999-2,099	20	9.6
2,100 or more	22	10.6
Undetermined	2	1.0
Total	208	100.0

Table 4.6

BASIC SURVEY SAMPLE SCHOOLS CLASSIFIED BY SIZE AND TYPE OF COMMUNITY

Size and Type of Community	Schools in Sample Number	Schools in Sample Percent
Small rural or farming community	104	20.5
Small city or town under 50,000 and not a suburb of a city 50,000 or more	146	28.8
City of 50,000 - 200,000 and not a suburb of a city 200,000 or more	79	15.6
Suburb of a city 50,000 - 200,000	40	7.9
City of 200,000 - 500,000 and not a suburb of a city 500,000 or more	22	4.3
Suburb of a city 200,000 - 500,000	16	3.2
City of over 500,000	44	8.7
Suburb of a city over 500,000	56	11.0
Total	507	100.0

Table 4.7

BASIC SURVEY SAMPLE SCHOOLS CLASSIFIED BY TYPE OF SCHOOL AND GRADE/AGE-LEVEL ORGANIZATION

	Regular Schools		Special Schools		Total	
Grade Level Organization	Number	Percent	Number	Percent	Number	Percent
Elementary	326	64.3	13	2.6	339	66.9
Secondary	100	19.7	7	1.4	107	21.1
Elementary/Secondary	10	2.0	51	10.1	61	12.0
Total	436	86.0	71	14.0[a]	507	100.0

[a] Detail does not add to total because of rounding.

Table 4.8

AGE DISTRIBUTION OF BASIC SURVEY SAMPLE STUDENTS, BY SCHOOL TYPE

	School Type					
	Regular		Special		Total	
Student Age	Number	Percent[b/]	Number	Percent[b/]	Number	Percent[b/]
3 year olds	3	0.1	5	0.9	8	0.3
4 year olds	6	0.3	11	2.1	17	0.6
5 year olds	33	1.6	20	3.8	53	2.0
6 year olds	106	5.0	19	3.6	125	4.7
7 year olds	152	7.2	26	4.9	178	6.7
8 year olds	194	9.1	39	7.3	233	8.8
9 year olds	155	7.3	34	6.4	189	7.1
10 year olds	168	7.9	25	4.7	193	7.3
11 year olds	161	7.6	32	6.0	193	7.3
12 year olds	151	7.1	28	5.3	179	6.7
13 year olds	164	7.7	32	6.0	196	7.4
14 year olds	175	8.2	31	5.8	206	7.8
15 year olds	211	9.9	40	7.5	251	9.4
16 year olds	191	9.0	44	8.3	235	8.8
17 year olds	128	6.0	45	8.5	173	6.5
18 year olds	89	4.2	38	7.2	127	4.8
19 year olds	32	1.5	23	4.3	55	2.1
20 year olds	5	0.2	15	2.8	20	0.8
21 year olds	2	0.1	24	4.5	26	1.0
Total	2,126	100.0	531	100.0[c/]	2,657	100.0[c/]

[a/] New Mexico declined to participate prior to study design implementation.

[b/] All percents are based on column totals.

[c/] Percents do not total 100 due to rounding error.

Table 4.9

GRADE LEVEL AND SEX DISTRIBUTION OF BASIC SURVEY SAMPLE STUDENTS

	Sex					
	Male		Female		Total	
Grade Level	Number	Percent[b]	Number	Percent[b]	Number	Percent[b]
Pre-K	15	0.6	18	0.7	33	1.2
K	49	1.8	31	1.2	80	3.0
1	115	4.3	56	2.1	171	6.4
2	132	5.0	69	2.6	201	7.6
3	110	4.1	55	2.1	165	6.2
4	108	4.1	58	2.2	166	6.2
5	96	3.6	53	2.0	149	5.6
6	81	3.0	46	1.7	127	4.8
7	113	4.2	65	2.4	178	6.7
8	118	4.4	48	1.8	166	6.2
9	149	5.6	64	2.4	213	8.0
10	120	4.5	65	2.4	185	7.0
11	101	3.8	45	1.7	146	5.5
12	68	2.6	29	1.1	97	3.6
Ungraded/ Undetermined	359	13.5	221	8.3	580	21.8
Total	1,734	65.3[a]	923	34.7	2,657	100.0[a]

[a] Detail does not add to total because of rounding.

[b] All percents are based on the total of 2,657 students.

Table 4.10

RACE DISTRIBUTION OF BASIC SURVEY SAMPLE STUDENTS

Race	Students	
	Number	Percent
American Indian or Alaskan Native	38	1.4
Asian or Pacific Islander	20	0.8
Black, Not Hispanic	526	19.8
Hispanic	103	3.9
White, Not Hispanic	1,970	74.1
Total	2,657	100.0

Table 4.11

DISTRIBUTION OF BASIC SURVEY SAMPLE STUDENTS, BY NATURE AND SEVERITY OF HANDICAPPING CONDITION[a]

	Severity of Condition							
	Mild		Moderate		Severe		Total[b]	
Nature of Condition	Number	Percent[c]	Number	Percent[c]	Number	Percent[c]	Number	Percent
Mentally Retarded	640	65.3	271	27.6	70	7.1	981	28.5
Learning Disabled	442	43.1	435	42.4	149	14.5	1,026	29.9
Emotionally Disturbed	110	38.5	121	42.3	55	19.2	286	8.3
Speech Impaired	334	46.3	266	36.8	122	16.9	722	21.0
Deaf or Hard of Hearing	21	21.2	36	36.4	42	42.4	99	2.9
Orthopedically Impaired	34	38.2	32	40.0	23	25.8	89	2.6
Visually Handicapped	18	30.5	27	44.1	14	25.4	59	1.7
Other Health Impaired	74	42.3	54	30.9	47	26.9	175	5.1
Total	1,673	49.3	1,242	36.4	522	14.3	3,437	100.0

[a] The nature and severity of each student's condition was determined and specified for each student by his/her special education teacher.

[b] This column provides the total numbers and percents of reported disabilities for the sample students. The total number of conditions exceeds the sample size because some students have multiple disabilities.

[c] Percents in these columns are based on row totals, i.e., the number of students shown in the corresponding row of the last column.

Table 4.12

DISTRIBUTION OF STATE/SPECIAL FACILITY SAMPLE CLASSIFIED BY SIZE OF STUDENT ENROLLMENT

Size of Enrollment	Number	Percent
1-49	22	30.1
50-200	30	41.1
201 or more	21	28.8
Total	73	100.0

Table 4.13

DISTRIBUTION OF STATE/SPECIAL FACILITY SAMPLE CLASSIFIED BY PRIMARY PURPOSE OF FACILITY

Primary Purpose	Number	Percent
Residential treatment that includes educational services	18	24.7
Day care treatment that includes educational services	10	13.7
Day care and residential treatment that includes educational services	10	13.7
Educational services only	21	28.8
Other	11	15.1
Undetermined	3	4.1
Total	73	100.0[a]

[a] Percents do not total 100 due to rounding.

Table 4.14

GRADE LEVEL AND SEX DISTRIBUTION OF STATE/SPECIAL FACILITY SAMPLE STUDENTS

Grade Level	Sex[a/]				Total	
	Male		Female			
	Number	Percent	Number	Percent	Number	Percent
Pre-K	22	6.5	15	7.1	37	6.7
K	12	3.5	8	3.8	20	3.6
1	7	2.1	2	1.0	9	1.6
2	1	0.3	3	1.4	4	0.7
3	7	2.1	1	0.5	8	1.5
4	1	0.3	2	1.0	3	0.6
5	2	0.6	3	1.4	5	0.9
6	4	1.2	1	0.5	5	0.9
7	9	2.7	5	2.4	14	2.6
8	9	2.7	3	1.4	12	2.2
9	12	3.5	3	1.4	15	2.7
10	5	1.5	5	2.4	10	1.8
11	4	1.2	2	1.0	6	1.1
12	5	1.5	2	1.0	7	1.3
Ungraded/ Undetermined	239	70.5	156	73.9	395	71.8
Total	339	100.0[b/]	211	100.0[b/]	550	100.0

[a/] All percents are based on a total sample of students for whom sex information was available.

[b/] Percents do not total 100 due to rounding error.

Table 4.15

AGE DISTRIBUTION OF STATE/SPECIAL FACILITY SAMPLE STUDENTS

Student Age	Number	Percent[a]
3 year olds	12	2.2
4 year olds	28	5.1
5 year olds	32	5.8
6 year olds	12	2.2
7 year olds	27	4.9
8 year olds	17	3.1
9 year olds	24	4.4
10 year olds	28	5.1
11 year olds	27	4.9
12 year olds	33	6.0
13 year olds	44	8.0
14 year olds	64	11.6
15 year olds	38	6.9
16 year olds	35	6.4
17 year olds	33	6.0
18 year olds	28	5.1
19 year olds	28	5.1
20 year olds	21	3.8
21 year olds	19	3.5
Total	550	100.0[b]

[a] All percents are based on column totals.

[b] Percents do not total 100 due to rounding error.

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Table 4.16

RACE DISTRIBUTION OF STATE/SPECIAL FACILITY SAMPLE STUDENTS

Race	Number	Percent[a]
American Indian or Alaskan Native	1	0.2
Asian or Pacific Islander	2	0.4
Black, Not Hispanic	104	18.9
Hispanic	19	3.5
White, Not Hispanic	424	77.1
Total	550	100.0[b]

[a] All percents are based on column totals.

[b] Percents do not total 100 due to rounding error.

Table 4.17

DISTRIBUTION OF FACILITY STUDENTS, BY NATURE AND SEVERITY OF CONDITION[a]

Nature of Condition	Severity of Conditions						Total[b]	
	Mild		Moderate		Severe			
	Number	Percent[c]	Number	Percent[c]	Number	Percent[c]	Number	Percent
Mentally Retarded	13	2.4	26	4.7	32	5.8	71	12.9
Learning Disabled	6	1.1	5	0.9	10	1.8	21	3.8
Emotionally Disturbed	10	1.9	19	3.5	11	2.0	40	7.3
Speech Impaired	6	1.1	4	0.7	3	0.6	13	2.4
Deaf and Hard of Hearing	1	0.2	4	0.7	34	6.2	39	7.1
Orthopedically Impaired	2	0.4	6	1.1	6	1.1	14	2.6
Visually Handicapped	0	0.0	3	0.6	10	1.8	13	2.4
Other Health Impaired	5	0.9	20	3.6	9	1.6	34	6.2
Multiple Conditions	20	3.6	70	12.7	215	39.1	305	55.4
Total	63	11.5[d]	157	28.5[d]	330	60.0	550	100.0[d]

[a] The nature and severity of each student's condition was determined and specified for each student by his/her special education teacher.

[b] This column provides the total numbers and percents of reported disabilities by severity level for the sample students. The total number of conditions exceeds the sample size because some students have multiple disabilities.

[c] Percents in these columns are based on row totals, i.e., the number of students shown in the corresponding row of the last column.

[d] Detail does not add to total because of rounding.

Chapter 5

Instrumentation

Seven instruments were developed and field tested for collecting the data for the Basic Survey and its related substudies: IEP Evaluation Checklist, Student Characteristics Questionnaire, School Characteristics Questionnaire, School District Characteristics Questionnaire, State/Special Facility Characteristics Questionnaire, Sampling Information Protocol, and Level 2 Substudy Protocol. These instruments are described in this chapter. The justification for each item of each of these instruments is presented in the design report (see footnote 1 in Chapter 1).

Four additional Data-of-Record Forms also were prepared for recording information obtained in informal discussions with school, school district, and state/special facility personnel. Each of these forms is described along with the description of the questionnaire to which it most closely relates. Several other data record forms (e.g., Sampling Information Record, Student Listing Form, and Multiple Reporting Sheet) were developed to assist RTI field personnel in selecting the student sample at each sample school and facility. While these in-house forms were referenced earlier in Table 3.1, they are not described here.

I. IEP EVALUATION CHECKLIST

The IEP Evaluation Checklist (see Appendix C) was developed to compile data regarding the properties and contents of IEPs. Each IEP collected in the national survey was carefully reviewed at RTI by trained evaluators who then entered or checked the appropriate information in the IEP Checklist. The Checklist was designed so that, once completed by the evaluator, the entered data could be keyed directly onto machine-readable files for subsequent analysis.

The IEP Evaluation Checklist was specifically intended to provide answers to the first six Basic Survey questions (see Table 3.1). To provide answers to these questions, the Checklist includes 492 response options grouped under 16 general information headings. These general information headings request descriptive data regarding to what extent and in what format mandated information is included in IEPs,[1] and to what extent and in what format additional information is included to improve the viability of these documents as instructional plans. The procedures used to enter data in the Checklist is described in Section III of Chapter 6.

II. STUDENT CHARACTERISTICS QUESTIONNAIRE (AND DATA-OF-RECORD FORM 4)

The Student Characteristics Questionnaire (see Appendix D) is a two-page questionnaire that was completed for each student in the survey sample by the teacher most knowledgeable about the student's IEP. (Two Student Characteristics Questionnaires were completed for each student in the Retrospective Longitudinal Substudy; i.e., for those students for whom IEPs were collected for two consecutive years.) This questionnaire provided information regarding the characteristics of students receiving special educational services in public schools and state/special facilities, the participants in the development and approval of IEPs, the service settings in which students received the special educational services specified in IEPs, and the proportion of the academic week that students spent receiving these special services.

The Data-of-Record Form 4: Public School Student Information (see Appendix D) is a one-page form used to record information obtained in informal discussion with the teacher most knowledgeable about each sample student's IEP. The information is in regard to whether the student's special education placement is in the sample school, in some other school, or in both.

III. SCHOOL CHARACTERISTICS QUESTIONNAIRE (AND DATA-OF-RECORD FORM 2)

The one-page School Characteristics Questionnaire (see Appendix E) was completed by the principal (or designee) of each school in the sample, during the time that IEPs were being collected in his/her school by the RTI survey specialist. This instrument was used to provide basic descriptive information about the type of school, type of community, and available special education resources. These data were used to describe the schools in which students in the sample were being served, and to determine the existence of significant relationships between school characteristics on one hand, and the properties and contents of the IEPs and the type of special services being provided on the other hand.

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[1] Section 602 of the Education for All Handicapped Children Act of 1975 (P.L. 94-142) states that an IEP shall include "(A) a statement of the present levels of educational performance of such child, (B) a statement of annual goals, including short-term instructional objectives, (C) a statement of the specific educational services to be provided to such child, and the extent to which such child will be able to participate, in regular educational programs, (D) the projected data for initiation and anticipated duration of such services, and (E) appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether instructional objectives are being achieved."

The Data-of-Record Form 2: Public School Information (see Appendix E) is a two-page form used to record information obtained in informal discussion with the school principal or other school personnel. The information is in regard to school grade range, total school enrollment, number of handicapped students receiving special education, status of handicapped students who do not yet have IEPs, special education funding sources, and approximate number of handicapped students who receives special education at another school on a pull-out basis.

IV. SCHOOL DISTRICT CHARACTERISTICS QUESTIONNAIRE (AND DATA-OF-RECORD FORM 1)

The one-page School District Characteristics Questionnaire (see Appendix F) was completed by the school district superintendent or his/her designee. This instrument provided descriptive information about the resources available for handicapped students in the districts in which the sampled schools were located. In addition to describing the districts, the data was used to determine the existence of significant relationships between district characteristics and the properties and content of the IEPs and the type of special services being provided.

The Data-of-Record Form 1: School District Information (see Appendix F) is a one-page form used to record information obtained in informal discussion with school district personnel. The information is in regard to the number of intermediate districts or cooperative arrangements through which handicapped students are served, and the approximate number, by handicapping condition, of students so served.

V. STATE/SPECIAL FACILITY CHARACTERISTICS QUESTIONNAIRE (AND DATA-OF-RECORD FORM 3)

The three-page State/Special Facility Characteristics Questionnaire (see Appendix G) was completed by the director or other appropriate personnel at each of the facilities in a sample of state/special facilities. The data from this questionnaire were used for basically the same two purposes as the School Characteristics Questionnaire and the School District Characteristics Questionnaire; i.e., the data were used to describe the facilities in the sample, and to determine the existence of significant relationships between state/special facilities and the properties and contents of IEPs and the types of special services being provided.

The Data-of-Record Form 3: State/Special Facility Information (see Appendix G) is a one-page form used to record information obtained in informal discussion with State/Special Facility personnel. The information is in regard to the handicapped student enrollment and the status of handicapped students who do not yet have IEPs.

VI. LEVEL 2 SUBSTUDY PROTOCOL

The ten-page Level 2 Substudy Protocol (see Appendix H) outlined the field procedures to be followed in collecting data for a small subsample of students. This data collection activity was carried out by RTI professional staff members or consultants and consisted of interviewing relevant staff (e.g., the student's teachers, parents, school principal, special education coordinator), of classroom observations, and of a study of each sample student's school records. The data collected during these unstructured data collection activities consisted of entries on data record forms (see Appendix H) and of narrative summaries. These data were used to describe the special education and related services actually received by handicapped students, to compare this special education program as actually implemented with the special education program as documented in the IEP, and to determine the nature of, and reasons for, any discrepancies between the two. In addition, the data were used to estimate the degree of familiarity of parents with the contents of their children's IEPs.

VII. SAMPLING INFORMATION PROTOCOL

The Sampling Information Protocol (see Appendix I) outlined the procedures to be followed by RTI survey specialists in collecting certain school and school district related information (including enrollment sizes) via contact with the school district superintendent. These data were intended to meet two needs. First, the data were used, along with other available data, as a basis for selecting sample schools within each sample district. And second, the data were used to describe schools and school districts in which students receiving special education services were enrolled.

Chapter 6

Data Collection, Receipt Control, IEP Coding, and Data Processing

This chapter provides an overview of the procedures used to collect and process the large amount of data required to meet the objectives of the national survey. these procedures are described in five sections as follows: data collection (Section I); receipt control (Section II); IEP coding (Section III); data processing (Section IV); and confidentiality procedures (Section V).

I. DATA COLLECTION

A. Basic Survey

1. Gaining Cooperation

Standard school survey protocol was followed in an effort to gain cooperation from 232 selected school districts (LEAs) in 43 states. Contacts began in early December, 1978 with a letter from BEH to the Chief State School Officer (CSSO) of each state included in the survey sample (see Appendix J). The letter was designed to inform the CSSO of the survey, to advise that school districts in the state had been selected for participation, and to request cooperation from the State Education Agency (SEA). A list of selected LEAs within the state accompanied the letter. The CSSO was requested to name the Director of Special Education for the SEA as state coordinator for the survey. A copy of each CSSO letter also was sent to the appropriate state representative of the Committee on Evaluation and Information Systems (CEIS) of the Council of Chief State School Officers.

Approximately one week after the CSSO letters were mailed, a project staff member telephoned the Director of Special Education of each state included in the sample. During these calls, SEA cooperation was solicited, requests for additional information were handled, and procedures for contacts with sample LEAs within each state were agreed upon. A number of options were offered for the conduct of LEA mailings, telephone follow-up, and data collection scheduling to insure that SEA-preferred protocol would be followed. These options ranged from all arrangements with LEAs being completed by the state coordinator to all arrangements being made directly with LEAs from BEH/RTI.

After completion of the telephone contact with each SEA, a letter was sent from RTI confirming arrangements agreed upon (see Appendix K). All 43 contacted states agreed to cooperate.

Contacts with sample LEAs were initiated in January, 1979, with information packages prepared at RTI and mailed from BEH. The package contained a cover letter from BEH (see Appendix L), a summary description of the survey (see Appendix M), and a copy of the appropriate CSSO letter. The cover letter, addressed to the LEA superintendent, explained the survey, indicated that the district had been selected for participation, invited the superintendent to designate the district special education director or another staff member as coordinator, and advised that the LEA would be contacted within a few days regarding participation. These mailings were made directly to sample LEAs with copies to the designated state coordinator and the CEIS representative for the state, except in those cases where the SEA had selected a contact option requiring mailing from the state level. In these latter cases packages for each sample LEA were mailed from BEH to the designated state coordinator for distribution.

Telephone follow-up with LEAs began approximately two weeks after the mailing. These calls were made by RTI field supervisors. During the telephone conversation with a superintendent or designated LEA coordinator, efforts were made to:

a) Solicit the district's cooperation in the survey.

b) Determine the desired procedure for contacting sample schools within the LEA.

c) Obtain current school and enrollment information required to select sample schools.

Each field supervisor was provided with written procedures for conducting the LEA contacts and was briefed for the activity by a telephone conference call with a project survey specialist. Results were telephoned to RTI so that school sample selection and preparations for school contacts could be completed. Contacts were made with 232 sample LEAs. Of these, 208 agreed to participate, 22 declined, and 2 were determined to be ineligible.

Contacts with principals of sample schools began with a mailing from RTI, which contained a cover letter from the project director, a summary of school activities for the survey, and a confidentiality of data statement (see Appendix N). Copies of these materials were also sent to the LEA superintendent, LEA coordinator, SEA coordinator, and the state CEIS representative. Approximately two weeks after the school mailing, the RTI field supervisor responsible for data collection in a school telephoned the school to answer questions, obtain agreement to participate, and schedule a data collection visit. Of the 519 schools selected for the sample, 508 agreed to participate, 9 declined, and 2 were determined to be ineligible.

2. Training Field Staff

Sixteen field supervisors were trained at RTI in mid-February, 1979. Training was based on a comprehensive project manual, designed to serve as a training manual as well as a procedural manual during field work. The manual and the training covered procedures for school contacts, scheduling data collection, shipping completed work to RTI, progress reporting, and detailed specifications for student sample selection and data collection.

3. Data Collection in Sample LEAs

At the time scheduled during the telephone contact, the field supervisor traveled to an LEA and first met with the LEA coordinator to confirm arrangements for school data collection and to complete a School District Characteristics Questionnaire (see Appendix F). A Data-of-Record Form 1 (see Appendix F) was completed by the field supervisor. Following this introductory meeting, the field supervisor visited the sample schools within the LEA. At each school, the following basic survey tasks were completed:

a) Final arrangements for data collection were made with the principal or designee.

b) A completed School Characteristics Questionnaire (see Appendix E) was obtained.

c) A sample of students with current year IEPs was selected following specified procedures (see Section I.B.3 of Chapter 4).

d) Unique identification numbers were assigned to each sample student.

e) Sample student IEPs were photocopied and personally identifying information was deleted.

f) A signed Memorandum for the File (see Appendix O) was placed in each sample student's IEP folder.

g) A completed Student Characteristics Questionnaire (see Appendix D) for each sample student was obtained from the teacher most familiar with the student's IEP.

h) A Data-of-Record Form 2 (see Appendix E) was completed for each sample school, and a Data-of-Record Form 4 (see Appendix D) was completed for each student in the sample.

i) All collected materials were scan-edited to insure completeness. Upon completion of data collection activities at each sample school within an LEA, the field supervisor batched all completed documents by school and shipped them to RTI. A courtesy call was made to the LEA office before departure from the area.

Throughout data collection, RTI field staff complied with any special policies or procedures of sample LEAs and schools (e.g., obtaining parental consent requirements, file access by school personnel only). In addition, every effort was made to conduct data collection in a manner that would result in minimal disruption of school activities. Generally, cooperation of school personnel with the survey activities was outstanding.

B. Longitudinal Substudies

1. Level 1

Efforts were made to collect data for the Level 1 Retrospective Longitudinal Substudy in each sample school involved in the Basic Survey. Sampling procedures were applied by the field supervisor to randomly select two students, for whom a prior year IEP existed, from the Basic Survey sample. Then, following procedures employed for Basic Survey data collection, a copy of each selected student's prior year IEP was made and a completed Student Characteristics Questionnaire was obtained from the teacher most familiar with the student's prior year program.

2. Level 2

Data for the Level 2 Retrospective Longitudinal Substudy were collected in a subsample of 25 school districts. These visits were made by RTI professional staff and consultants. Each visit consisted of collection of all data, as described above, for the Basic Survey and the Level 1 Retrospective Longitudinal Substudy and, in addition, of interviews, observations, and study of school records regarding the special education program of one handicapped student in each sample school. These data collection procedures are described in detail in Volume IV, Chapter 3.

C. State/Special Facility Substudy

Data collection activities, similar to those described for the Basic Survey, were conducted in a sample of non-LEA administered state/special facilities for the handicapped. Approval was obtained from appropriate state-level administrators prior to contacts with sample facilities. Mailings, similar to school mailings previously described, were made to the facilities. Follow-up telephone contacts to obtain cooperation and schedule data collection were made by RTI field supervisors, who then visited assigned facilities to conduct field work. Procedures employed were those designed for the Basic Survey, with the exceptions that no School District Characteristics Questionnaire was obtained, a State/Special Facilities Questionnaire (see Appendix G) replaced the School Characteristics Questionnaire, and a Data-of-Record Form 3 (see Appendix G) replaced the Form 1 and Form 2.

Excellent cooperation was experienced with sampled facilities. Of 77 eligible facilities included in the sample and determined to be eligible for the survey, 73 participated and 4 declined.

II. RECEIPT CONTROL

Completed documents received at RTI were subjected to carefully specified receipt-control activities. A project survey assistant checked in each shipment, making certain that all required documents for each sample district or facility were included. Then, all documents were checked to insure that unique identifiers had been properly assigned and accurately entered on each. Documents were then batched by type for processing.

Data receipt was monitored by the use of an automated control system. Under this system, a record was maintained in a master control file for each district, school, and student in the sample. As each document passed through the various stages of processing, "event" records were created (either through manual keying or automatic generation by data-entry or editing programs) that reflected changes in document status. Using the event records, the control file was periodically updated and reports were generated summarizing the current status of each document and changes since the last update. In those cases where events violated a predetermined sequence, or a specified period of time passed between changes in status, warning messages were printed and action was taken to resolve the problems.

In addition to monitoring the status of each document, the control file maintained information on each document's location. This information permitted rapid retrieval of documents at any stage of in-house processing.

III. IEP CODING

The particulars of the IEP Checklist coding procedures can be found in Appendix P. The purpose of this subsection is to: (a) describe the coder-training process, (b) review the method and the intent of the quality control activities, and (c) report briefly on the system that was formatively developed to incorporate unanticipated variations in IEP characteristics.

A. Coder Training

The IEP Evaluation Checklists were completed by seven highly qualified and fully trained coders. All seven coders had had previous academic and work experience in the area of special education. A one-week training program was designed based on the known entry level of the seven coders. This program involved both active and receptive learning deemed necessary to meet the coder-training task objectives. The objectives for coder training were of two major types; one pertaining to the accuracy and appropriateness of an individual coder's checklist selections, and the second pertaining to the uniformity of the problem-solving process exercised by the seven members of the coding team. A comprehensive coding manual was devised based on anticipated characteristics of IEPs (and on characteristics of IEPs coded during the field trial). Coder training began with a thorough review of this manual, and included practice coding of six IEPs representing a variety of IEP types and a sampling of anticipated coding problems. By means of training conferences that followed each of the six practice IEP codings, the seven coders were instructed in the consistent application of the developed coding protocols and were led through several examples of deductive resolution of nonstandard data placements. Whenever coders experienced difficulty in applying the guidelines provided in the coding manual, the original coding manual was expanded to clarify these problem areas.

B. Quality Control Procedures

The major portion of the quality control procedures were assigned to a single person to maximize coder accuracy, to assist coders in handling nonstandard data, and to maximize intercoder reliability. This individual was available at all times for consultations with coders when they encountered difficulties in handling nonstandard IEP data. This individual also recoded at least one IEP per district (averaging one IEP out of a batch of eight), compared this IEP checklist with the checklist prepared by the coder, recorded any differences in a standard log form, and conferred individually with coders to explain any problems found in their coding. The aim of these problem-focused conferences with coders was to increase coder understanding of the rationale behind the known coding protocols in such a way that all coders would follow a similar system of logic (leading to similar results) in their individual resolutions of coding exceptionalities. After consensus had been reached (thorough discussion of preferred placement and the rationale for that placement) between the individual coders and the quality control monitor, the coder proceded to correct the errors in the IEP that had been checked and to review and correct all IEPs in the same batch (or district) likely to exhibit the same difficulties. When necessary, coders also went back to past batches to correct any recurrent error that later had been identified through the quality control procedures. Any difficulties encountered by the quality control monitor that seemed likely to affect other coders, were relayed to all seven members of the coding team. For each error found, the responsible coder recorded, in the quality control monitor's error log, the number of other IEPs that had needed to be checked for the possibility of containing the error, and the number of IEPs that had required correction of that error. The original coding manual for coders was revised and supplemented where necessitated by recurrent difficulties in the coding of particular items.

C. Incorporation of Unanticipated Variation

Exceptional data on IEPs was an occurrence of sufficient frequency to merit brief comment here. It became clear early in the coding task that IEPs were widely diverse in both quality and characteristics, requiring a full continuum of coding classifications and a process-oriented system for resolution of exceptionalities. Few judgments of coding placements were entirely straightforward and simple. Most coding placements required that coders generate logical extensions of existing coding regulations in order to make placements in the most appropriate categories. This element of extreme diversity in field-collected material was dealt with through a continuous process involving quality control checking, coder consensus discussions, and clarification of rationale for coding decisions. The coding regulations contained in Appendix P reflect the outcome of this continuously expanding coding process.

IV. DATA PROCESSING

Prior to data entry, each batch of documents was thoroughly edited by trained data editors who followed edit specifications developed by a project survey specialist. When an error was discovered, the flawed document was routed to project staff members responsible for resolution. Such resolutions were completed by telephone contact with the field staff member responsible or by direct telephone contact with the sample district, school, or facility.

Data entry for the project was performed using an in-house Data General mini-system. For each form, software was written that enabled operators to perform simple edits, such as checks on data type and valid ranges. A 100 percent "key-verify" system was used to insure quality control. Under this system, each document was keyed twice. During the second keying, each keystroke was compared with that from the first keying. Where the two did not match, the terminal "locked," forcing the operator to recheck the document before reentering the data. Use of this method reduced the rate of edit failures due to keying errors to less than one percent.

Using the above system, data were keyed directly to disk. At various intervals the disk files were transferred to tape and sent to the Triangle Universities Computing Center (TUCC) where they were reformatted and prepared for future processing.

Once data were converted to machine-readable form, more extensive editing was undertaken using generalized software, driven by codebooks. Errors or discrepancies detected by the editing programs include: out-of-range data, invalid codes, multiple response, improper following of routing patterns, and lack of consistency among two or more items. For purposes of later analyses, distinctions were made in the edited file between properly skipped data (due to specified skip patterns) and missing data.

The general edit programs made no changes to the data, except for the conversion of properly skipped data to the appropriate codes. Instead, the programs produced lists of all documents failing edits, and a list of all data items involved in such failures. Each input file was split into an output file containing records that passed all edit checks, and one containing those that failed at least one. Where necessary, hard-copy documents were retrieved to determine what corrections needed to be made to correct failures. In some cases, it was necessary to contact field staff, schools, or facilities to resolve discrepancies. On the basis of these checks, lists of corrections were generated, and changes made to the data files via online updating programs.

After corrections were made, the files containing the corrected records were remerged with those that had initially passed edit. The merged files were then made available for analysis.

V. CONFIDENTIALITY PROCEDURES

Several procedures were employed to maintain confidentiality of participants' data. These procedures, some of which were mentioned previously in this chapter, are summarized in this section.

A presentation of confidentiality and privacy requirements was included in training sessions for RTI supervisors, field-staff, and other on-site staff members who handled data. To aid in this activity, the Survey Specialist's Manual, which was developed for this study, contained specific policy statements on anonymity and confidentiality as well as on the rights of respondents, including the right of informed consent and the right to privacy.

Prior to initiating data collection activities in the schools, school principals or facility directors were provided with (a) a confidentiality-of-data statement (see Appendix N) which was prepared jointly by RTI and a member of the Privacy and Information Rights Staff, USOE, and (b) an example letter that the principal (director) might wish to mail to parents of handicapped students in his/her school in order to obtain their permisson for RTI personnel to access the files of their children. The confidentiality-of-data statement notes that data collection procedures planned for the survey would be in compliance with both the Privacy Act of 1974, that every precaution would be exercised to protect the identity of every study participant, and that collected raw data would be used only by RTI personnel. The example letter, though not required by the Privacy Act, the Buckley Amendment, or P.L. 94-142, was required on occasion by local or state policies.

A confidentiality memorandum (see Appendix O) was placed in each student's file from which data were collected. This memorandum, which was signed by the person accessing the file, briefly explained the study and stated that all data collected from a student's file, would be handled in strictest confidence in conformity with all applicable state and Federal privacy laws. In addition, upon request, district confidentiality forms also were signed.

All personally identifying information on individual participants was removed prior to removal of data collected from a particular school or facility. However, proper editing and analysis of the data required the capability to link the IEPs and SCQs collected for each student, as well as to link together all data collected at each school and at each LEA. This requirement was met, while still protecting the anonymity and confidentiality of data related to participating LEAs and schools, through assignment of ID numbers to the names and addresses of these schools/state/special facilities. This list, which was maintained at RTI and treated as "highly confidential" was destroyed when all data processing and analysis activities were completed. The linkage between student and teacher ID numbers and names was left at the school/state/special facility (with the principal/director) with instructions that it be destroyed at the beginning of the 1979-80 school year, at which time the data had been edited and preliminary analyses completed.

All handling of source documents (questionnaires and photocopied IEPs) at RTI was done under the technical supervision of professional survey staff. Storage for source documents was provided in a secure room, access to which was controlled (i.e., entry signed for) by the professional staff member in charge of receipt control, verification, and coding operations.

Data collection instruments received daily in the mail were dealt with on a flow basis. Overnight storage was provided in a locked and secure work space. When processing was completed, all source hard-copy documents were secured in an ordered accessible manner until data processing was completed.

Chapter 7

Data Analysis

This chapter provides an overview of the analyses conducted to address the questions posed for the study (see Table 3.1). For discussion purposes, this overview is presented in three subsections. The first section covers the Basic Survey, the State/Special Facilities Substudy, and Level 1 of the Retrospective Longitudinal Substudy. The second section discusses Level 2 of the Retrospective Longitudinal Substudy. The third subsection presents a brief discussion of the procedures used to determine the statistical and educational significance of comparative analyses of measures for two subpopulations (e.g., comparisons of the characteristics of IEPs prepared for regular and special school students).

I. BASIC SURVEY, STATE/SPECIAL FACILITIES SUBSTUDY, AND LEVEL 1 OF THE RETROSPECTIVE LONGITUDINAL SUBSTUDY

A. Creation of Work Files

IEP survey data analyses, with the exception of those for the Level 2 Substudy, involved computer analytic procedures. These procedures were managed through the Statistical Analysis System (SAS) program package, including software developed by RTI to interface with SAS. Accordingly, an initial step in approaching data analysis was to create a set of SAS data sets from the edited raw data files. A total of six such data sets were created, corresponding to different sampling levels. Each data set contained information from one or more of the survey instruments, and also contained certain sample information necessary to the analyses of the stratified, clustered design. This latter information included an adjusted weight that was based on a raw weight. The raw weight was derived from the sample design and modified to take into account nonresponse by such techniques as weighting class adjustment procedures appropriate to the particular sample level. Details concerning the computation of the adjusted weights are presented in Appendix B.

Of the six SAS data sets, three contained information about student samples. One, the basic survey data set, contained for each student in the basic survey sample a data record with all information from that student's IEP

Evaluation Checklist and the Student Characteristic Questionnaire and associated Data-of-Record Form. It also contained information from the School and School District Characteristics Questionnaires and associated Data-of-Record Forms for the school and district in which the particular student was enrolled. Similarly, a State/Special Facility student data set contained for each student in the State/Special Facility sample a record composed of information from an IEP Evaluation Checklist, a Student Characteristic Questionnaire, and the appropriate State/Special Facility Characteristic Questionnaire and associated Data-of-Record Form. A Level 1 Substudy data set contained school, student, and IEP Evaluation Checklist information similar to that of the basic student file and, additionally, information from the IEP Evaluation Checklist and Student Characteristic Questionnaire for the prior year. The other three SAS data sets contained information on the schools, facilities, and districts involved in the study. The school data set contained one record for each responding school corresponding to the School Characteristic Questionnaire and its associated Data-of-Record Form. Similarly, the facility and district data sets contained the Facility Characteristic Questionnaire and the District Characteristic Questionnaire, respectively.

B. Analytic Procedures

The majority of data analyses were of two general types. One type of analysis provided percentages of cases falling into various of categories. The other type provided estimates of mean values. For both types of analyses (i.e., percentages or estimates of mean values), data were reported for an entire population or were reported separately for subgroups of that population. For example, many of the results presented in this report concerning the Basic Survey students are reported for the total Basic Survey sample, for the sample broken down into age categories (3-5, 6-12, 13-15, 16-21) and by type of school (regular school or special school).

Most of the readily available software packages would have treated the sample as independent random observations, ignoring the sample design. This approach, though convenient, would have been inappropriate since it would not account for unequal probabilities of selection. The application of sampling weights is possible through some software packages, allowing correct estimates of parameters, but appropriate error variance estimates typically are not produced. In fact, it is not possible to obtain explicit expressions for variance estimates of some complex test statistics within complex survey sample designs; however, there are various approximation procedures available. To produce statistics appropriately taking into account the sample design and weights and to produce standard errors for the estimates based thereon, RTI's SESUDAAN program was used.[1] This program has been imbedded as a procedure step in RTI's SAS Procedures Library. It provides weighted estimates of proportions or means, their associated standard errors,[2] and the estimate of the total population (e.g., the sum of weights on which the estimates were based).

In most cases, SAS program steps were executed before the running of SESUDAAN to create composite variables, to exclude missing value codes from the computation of means, etc. For example, one simple recode involved the definition of categories for the number of pages in IEPs.

Computer-assisted data analysis was accomplished on a flow basis as decisions were made concerning the tabular presentations necessary to answer various study questions. The estimates needed for the tables were specified by key project researchers. Programmer analysts then computed the necessary estimates which were transcribed onto the final tables.

II. LEVEL 2 OF THE RETROSPECTIVE LONGITUDINAL SUBSTUDY

Because of the nature of the data and the small sample size, data collected for the Level 2 Retrospective Longitudinal Substudy were hand-tabulated.

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[1] Shah, B. V., SESUDAAN: Standard Errors Program for Computing of Standardized Rates from Sample Survey Data. Research Triangle Park, North Carolina: Research Triangle Institute, 1979. An earlier developed program by Shah, STDERR, which provides similar statistics, was used in the early phases of analysis.

[2] Because one is measuring only a sample of elements rather than all elements in a population, one can only estimate population values. If, for example, one wished to know the number of IEPs with a certain characteristic for the population of handicapped children with IEPs, one could estimate this from sample data. When probability sampling is used, it is possible to compute estimates that are unbiased. The statistical meaning of the term "unbiased" is that the expected value of the estimate has the same value as the population value one is estimating. That is, the average value of the estimates for all possible samples would be equal to the population value. The actual value of the estimate would vary from sample to sample, and the standard deviation of the estimate is termed the sampling error (or standard error) of the estimate. The magnitude of the sampling error is related to two factors over which the sampler can exert some control, i.e., the size of the sample and the procedures used in selecting the sample.

While data regarding the content of the actual special education programs for the sample students were collected in unstructured interviews with school personnel, much of these data were summarized on data record forms. This permitted comparisons to be made between the actual program (as outlined in the data record forms) and the program as specified in the IEP (as represented by the actual IEP and the IEP Evaluation Checklist prepared for the IEP). Additional data to support these comparisons then were gleaned from the narrative summaries of site-visit activities and findings.

III. DETERMINATION OF STATISTICAL AND EDUCATIONAL SIGNIFICANCE FOR COMPARATIVE ANALYSES

Most of the comparative analyses for the survey data involved computing and contrasting counts and proportions for two subpopulations; e.g., comparing the proportion of regular school IEPs that contain evaluation procedures to the proportion of special school IEPs that contain this information. These statistics and their standard errors were estimated taking into consideration the sample design parameters. The reader is reminded that all survey findings other than those of the Level 2 Longitudinal Substudy are estimates of population parameters and should be interpreted accordingly.

When reporting and comparing the results of these analyses for different subpopulations, two factors were taken into consideration: (a) the probability that observed differences were due to chance sampling errors (statistical significance) and (b) the practical importance (educational significance) of observed differences.

Because of the large number of comparisons involved, it was not feasible to compute the realized level of significance for each comparison. Rather, the following guidelines were used to aid in ruling out "chance" differences:

a) Differences which have a magnitude of less than 1.5 times the standard error of the difference associated with the measures were considered to be "definitely nonsignificant."

b) Differences of the magnitude of 1.5 to 2 standard errors were interpreted as being "suggestive of significant differences."

c) Differences of 2 or more standard errors were considered to be statistically significant.

The second category, "suggested differences," was included because of the exploratory nature of these comparative analyses and the conservative approach used to determine if observed differences between measures are statistically significant. Suggestive differences, though they are too small to be considered statistically significant at the level suggested for this study, are large enough to use for generating potential hypotheses for testing in future studies.

The differences presented in this report are those which are statistically significant at or beyond about the .05 level. This means that a sample difference of this magnitude can be expected to occur in repeated samplings only five times in a hundred if the actual difference is zero. While these results very likely reflect actual performnce differences between groups, they provide no information about the causes of these differences.

In making comparisons between two means/proportions for the Basic Survey and for the State/Special Facility Substudy, the standard error of the difference between the two measures was computed as follows:

$$SE_D = \sqrt{(SE_{M1})^2 + (SE_{M2})^2} \ ,$$

where SE_{M1} and SE_{M2} are the standard errors of the two measures. The reader can easily apply this formula since it uses directly the standard errors computed and reported in the appendixes for each of the means/proportions. This formula assumes that the measures being compared were based on two independent samples, i.e., that elements in one of the samples were independent of elements in the other sample. This assumption is quite valid for the comparisons made between Basic Survey and State/Special Facility students. However, the student samples being compared within each of these studies are not independent samples since they were selected under a consolidated sample design and share a common hierarchy of sample units; e.g., some of the 6-12 year old students, whose IEPs are being compared to those of 13-15 year old students, may share (attend) the same school/facility, or the same school district as some of the 13-15 year olds to whom they are being compared. A more complicated formula that includes a covariance term is required for making tests of significance between groups of data that are correlated; i.e.,

$$SE_D = \sqrt{(SE_{M1})^2 + (SE_{M2})^2 - 2\ \mathrm{COV}\ (M1,\ M2)} \ .$$

However, computation of the covariance term is a complicated procedure for the complex sample design of this study.

Tests made on a small, representative sample of comparisons indicate that the correlation between these groups was small and the standard error of the difference computed by the formula for independent samples tends to yield results that are slightly conservative (i.e., the probability of making a Type I error is lower). That is, a difference of two standard errors actually represents a true significance level slightly less than .05. However, this more conservative estimate is countered by the fact that multiple measures are being compared for each sample unit (e.g., number of objectives, goals, pages, etc., in the IEP), thus increasing the probability that differences between one or more of these multiple measures will be "statistically significant." For example, when 20 comparisons are made between the IEPs of two groups of students, one would expect to reach the .05 level of significance by chance alone for one comparison.

Given these considerations, the more simplistic formula was used to test for statistically significant differences in the Basic Survey and Facilities Substudy. However, the formula for testing correlated data was used in testing comparisons for the Level 1 Longitudinal Substudy. Change data for this substudy were highly correlated since repeated measures were based on the same students at two points in time (prior year and current year).

The reader is also further cautioned not to equate statistical significance and practical or educational importance. Unlike the technical issue of statistical significance, the importance or educational significance of findings is a matter of judgement. In making this judgement, both the magnitude of the difference and the importance of the area in which the difference occurred should be considered. That is, a small difference in a broad or educationally important area, such as the extent to which annual objectives are specified in IEPs, is more apt to be considered educationally significant than a large difference in a narrow or less important area, such as the extent to which IEPs are typewritten. Although statistical significance does not imply educational significance, the above guidelines for determining statistical significance are important in judging the magnitude of educational effects in that one should be reasonably confident that differences which appear to be educationally significant do not, in fact, have a high probability of occurring by chance. The descriptive statistics and associated standard errors that are presented in the appendixes enable readers to apply tests of statistical significance in order to make their own independent judgements about the statistical and/or educational significance of specific findings. For the Level 1 longitudinal study, Volume IV provides the reader with some guidelines for estimating the effect that the correlation between student groups has on the standard error of the difference as computed by the formula for independent samples.

Appendix A

Specific Details on Implementation of Sample Design

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I. OVERVIEW AND ORGANIZATION OF APPENDIX

The intent of this appendix is to provide specific details on the actual implementation of the sampling plan. For some audiences, the level of detail will be unwarranted, possibly even to the point of causing confusion; however, it is difficult to avoid this feature in a rigorous technical appendix of this nature. For expedience, it will be assumed that the reader is intimately familiar with the details of the proposed sample design. The discussions only focus on the operationalization of design concepts (i.e., strata, size measures, reallocation of sample size, etc.), with little attention given to describing the transition between stages of sampling.

The material is organized into two parts. Specifically, Section II deals with the School Component samples, leaving the Facility Component samples to be treated in Section III. Within each section, the discussion of samples is organized in accordance with the design hierarchy (i.e., districts, followed by schools and students in Section II; facilities followed by students in Section III). Finally, in discussions surrounding the School Component (i.e., Section II), materials supporting a given stage of sampling are organized by component (i.e., School, Level 1, and Level 2).

II. DOCUMENTATION OF SCHOOL COMPONENT SAMPLING PROCEDURES

The School Component was supported through a single consolidated three-stage cluster design having public school districts at the first stage, schools at the second, and handicapped students at the third stage of sampling. Discussions will emphasize procedures used at the first stage of sampling (i.e., districts) in order to fully establish the credibility of the realized sample at the national level. Each stage of sampling will be discussed in turn.

A. District Sampling Procedures

Selection of the district sample entailed:

1) Abstraction of district frame from CIC files.
2) Resolution of frame ambiguities.
3) Formation of stratification and size variables on the district file.
4) Selection of district size measure.
5) Construction of strata on district frame.
6) Selection of district sample for Basic Survey.
7) Selection of Level 2 subsample of districts.
8) Summary of district samples.
9) Responding status of district sample.

Each subtask will be addressed in turn.

1. Abstraction of District Frame From CIC Files

A machine-readable data file containing school and school district enrollment information for the academic year 1978-79 was received from the Curriculum Information Center (CIC) in mid-October 1978. Upon receipt of the file, a frame containing all public school districts within the geographic confines of the study was constructed. For each district, information was retained on: (a) the number of schools in the district (by special education, vocational, adult, and other); (b) the district enrollment (as reported by district); (c) the sum of enrollments of all schools within the district (by type); (d) an indicator defining whether or not the district is contained in a Standard Metropolitan Statistical Area (SMSA); (e) state and district identifiers; and (f) a count of the number of subdistricts administered at least in part by each district. In all, the frame contained 14,325 districts, including 158 districts performing administrative functions for 715 subdistricts. Discrepancies with published National Center for Education Statistics (NCES) data on district counts (apart from our study excluding Alaska, Hawaii, New Mexico, and all territorial properties) lie primarily in the CIC treatment of small districts (i.e., districts having fewer than 300 students), in the chaos surrounding administrative units in Nebraska, and in the organization of administrative levels in New England.

2. Resolution of Frame Ambiguities

In constructing the district frame, large discrepancies occasionally occurred between the district enrollment appearing on the file, and the sum of enrollments of schools within the district. Such discrepancies were investigated further, and corrected where possible. A list of districts exhibiting large (that is, greater than 10 percent) discrepancies was provided to CIC upon request. For the most part, discrepancies were found to arise due to pull-out programs in vocational schools (with subsequent double counting of students), to the decision not to include adult education schools in arriving at the district figure, and to the defining of a pseudo district in each state to account for the State Education Agency. Unequivocably, CIC personnel felt that the district enrollment figure was most reflective of the school population being served and this judgement was reflected in any and all future estimates that were made.

3. Formation of Stratification and Size Variables

In order to construct first-stage strata, each district record was augmented with variables designating census region, district size, and service level (see Tables A.1-A.3 for definition of levels associated with each variable). In addition, the indicator for Standard Metropolitan Statistical Area (SMSA)[1] on the CIC file is defined in Table A.4. Finally, the family of candidate district size measures for the IEP Survey all involve the number of handicapped students in each school district by school type (i.e., regular versus special school enrollment). This variable (by school type) was estimated and added to each district record using the methodology outlined in Attachment 1.

4. Selection of District Size Measure

The intent of the School Component study design was to produce a self-weighting sample of handicapped students at special schools having rate r_S, and a self-weighting sample of handicapped students at non-special schools (termed regular) at rate r_R. In addition:

a) Special and Regular School components were to be supported by a common first stage sample of districts.

b) Student sample sizes varied by school type (i.e., five at regular school and eight at special school).

In combination, these requirements make it advantageous to employ an adjusted composite size measure in selecting the district sample. In defining such a

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[1] The Census Bureau defines an SMSA (as of 1970) as a geographical area containing at least one city with a population exceeding 50,000.

Table A.1

Listing of States and Their Associated Census Region

State Name	State Abbrev.	State No.	Census Region
Alabama	AL	01	3
Arizona	AZ	04	4
Arkansas	AR	05	3
California	CA	06	4
Colorado	CO	08	4
Connecticut	CT	09	1
Delaware	DE	10	3
District of Columbia	DC	11	3
Florida	FL	12	3
Georgia	GA	13	3
Idaho	ID	16	4
Illinois	IL	17	2
Indiana	IN	18	2
Iowa	IA	19	2
Kansas	KS	20	2
Kentucky	KY	21	3
Louisiana	LA	22	3
Maine	ME	23	1
Maryland	MD	24	3
Massachusetts	MA	25	1
Michigan	MI	26	2
Minnesota	MN	27	2
Mississippi	MS	28	3
Missouri	MO	29	2
Montana	MT	30	4
Nebraska	NE	31	2
Nevada	NV	32	4
New Hampshire	NH	33	1
New Jersey	NJ	34	1
New York	NY	36	1
North Carolina	NC	37	3
North Dakota	ND	38	1
Ohio	OH	39	2
Oklahoma	OK	40	3
Oregon	OR	41	4
Pennsylvania	PA	42	1
Rhode Island	RI	44	1
South Carolina	SC	45	3
South Dakota	SD	46	2
Tennessee	TN	47	3
Texas	TX	48	3
Utah	UT	49	4
Vermont	VT	50	1
Virginia	VA	51	3
Washington	WA	53	4
West Virginia	WV	54	3
Wisconsin	WI	55	2
Wyoming	WY	56	4

Table A.2

SPECIFICATION OF DISTRICT SIZE VARIABLE

District Size	Enrollment Range
1	[0,99]
2	[100,299]
3	[300,599]
4	[600,999]
5	[1000,2999]
6	[3000,4999]
7	[5000,9999]
8	[10000,24999]
9	[25000,∞]

Table A.3

SPECIFICATION OF SERVICE LEVEL VARIABLE

Service Level	Description of Services
1	District has special education school and at least one non-special school having class(es) organized for the particular purpose of providing instruction to exceptional children.
2	District has special education school(s) but no non-special school with any class(es) organized for the particular purpose of providing instruction to exceptional children.
3	Same as service level 1 except district has no special school(s).
4	Same as service level 2 except district has no special education school(s).

Table A.4

SPECIFICATION OF SMSA VARIABLE

SMSA Level	Description
1	Inner portion of Standard Metropolitan Statistical Area (SMSA)
2	Remainder of SMSA
3	Non-SMSA

measure, 2250 (i.e., 5 x 450) handicapped students were to be selected to support the Regular School Component so that

$$r_R = \frac{2250}{X_R(+)} \quad ,$$

where

$X_R(+)$ = number of handicapped students enrolled in regular (i.e., non-special) schools on frame.

Similarly, 520 (i.e., 8 x 65) handicapped students were to be selected to support the Special School Component so that

$$r_S = \frac{520}{X_S(+)} \quad ,$$

where

$X_S(+)$ = number of handicapped students enrolled in special education schools on frame.

Finally, the handicapped population served in regular schools can be partitioned as

$$X_R(+) = X_{R|S}(+) + X_{R|\bar{S}}(+)$$

where

$X_{R|S}(+)$ = number of handicapped students served in regular schools that are administered in an LEA containing a special education school.

$X_{R|\bar{S}}(+)$ = number of handicapped students served in regular schools that are administered in an LEA not containing a special education school.

With this notation in hand, set

$$f_S = \frac{65}{X_S(+)} \quad ,$$

$$f_{R\ S} = \frac{130}{X_{R|S}(+)} \quad ,$$

$$f_{R\ \bar{S}} = \frac{320}{X_{R|\bar{S}}(+)} \quad ,$$

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and define the size measure for district i as

$$X_i = \begin{cases} f_S X_S(i) + f_{R|S} X_{R|S}(i) & \text{if district i has special school(s)} \\ f_{R|\bar{S}} X_{R|\bar{S}}(i) & \text{otherwise} \end{cases} .$$

NOTE: The selected size measure can be viewed as the proportional allocation of the appropriate school sample after stratifying districts as S versus $\bar{S}$ and allocating 65 districts (or equivalently, 65 special and 130 regular schools) to strata $\underline{S}$, and 160 districts (or equivalently, 320 regular schools) to strata $\bar{S}$, i.e.,

$$X_i = \begin{cases} 65 \dfrac{X_S(i)}{X_S(+)} + 130 \dfrac{X_{R|S}(i)}{X_{R|S}(+)} \\ 320 \dfrac{X_{R|\bar{S}}(i)}{X_{R|\bar{S}}(+)} \end{cases} .$$

As such, after stratifying districts on S versus $\bar{S}$, the inclusion probability for a district would be

$$\pi_i = \begin{cases} 65 \dfrac{X_i}{\sum\limits_{i\varepsilon S} X_i} & \text{if } i\varepsilon S \\ 160 \dfrac{X_i}{\sum\limits_{i\varepsilon \bar{S}} X_i} & \text{if } i\varepsilon \bar{S} \end{cases} .$$

Notice that

$$\sum_{i\varepsilon S} X_i = 195$$

and

$$\sum_{i\varepsilon \bar{S}} X_i = 320$$

and hence that

$$\pi_i = \begin{cases} \dfrac{X_i}{3} & \text{if } i\varepsilon S \\ \dfrac{X_i}{2} & \text{if } i\varepsilon \bar{S} \end{cases} .$$

This representation will prove useful in quantifying self-representers and in discussing the allocation of the intended school sample size across components. Finally, using the methodology of the previous section, frame estimates were determined to be:

$$\hat{X}_S(+) = 170{,}795$$

$$\left.\begin{aligned} \hat{X}_{R|S}(+) &= 1{,}152{,}928 \\ \hat{X}_{R|\bar{S}}(+) &= 1{,}933{,}849 \end{aligned}\right\} X_R(+) = 3{,}086{,}777$$

$$\hat{f}_S = .000380573$$

$$\hat{f}_{R|S} = .000112756$$

$$\hat{f}_{R|\bar{S}} = .000165473 \quad .$$

At the outset, it was recognized that the estimated district size measure was extremely crude.

5. Stratification on District Frame

Stratification on the district frame was intended to:

a) Better guarantee integrity of School Component sample sizes.

b) Distribute sample over
    (1) geographic confines of study (see Table A.1)
    (2) complete range of services (see Table A.3)
    (3) district enrollment categories (see Table A.2)
    (4) urbanicity (see Table A.4)

c. Serve as base for realizing the required self-weighting sample of students.

Construction of strata will be discussed in relation to the first two themes in turn.

a. Stratification and sample allocation schemes to preserve integrity of School Component sample sizes. The study design calls for 225 sample districts including 65 districts that are in common for the Special and Regular School Components. Direct stratification on "presence/absence of special education schools in district" (denoted by $S/\bar{S}$ respectively) resulted in 835 S-districts and 13,490 $\bar{S}$-districts being identified on the district frame. The district sample was then allocated as 65 S-districts and 160 $\bar{S}$-districts. Later, it will be shown that this distribution of the sample size reflects a proportional allocation of the Regular School Component sample with respect to the estimated number of handicapped students served in this setting. This condition will be shown to be sufficient to produce an overall self-weighting Regular School Component sample of students when coupled with the imposed school and student selection strategies.

The study design called for the selection of two regular and one special school in each sample district (when present), and subsequently to select five handicapped students at each regular school, and eight handicapped students at each special school. By definition, each S-sample district contains a special education school, and without exception (according to CIC file) enroll more than eight students (all presumed to be handicapped). As such, guaranteeing the S-district sample size serves to guarantee all sample sizes for the Special School Component. More care was needed to make the same claim for the Regular School Component.

To "support" the Regular School Component, a sample district must allow (if scheme were "perfect"):

1) Two regular schools to be selected (possibly even greater number of schools under revised school sample size allocation using district level data collected during field operations).
2) Five handicapped students to be selected at each sample regular school.

Unfortunately, not all school districts can "support" the Regular School Component. To accomodate this, a Small Stratum (SS) was established on the district frame with membership being defined as "districts having fewer than two regular schools and/or fewer than 300 students."[2]
In all, SS contained 3,734 districts (26S, 3708$\bar{S}$), which were partitioned in Table A.5 into five categories on the basis of the number of regular schools in the district and the size of the district's student enrollment. SS districts were then cross-classified by category and presence/absence of special education school(s). Table A.6 provides the details.

---

[2] Note that:
a) Less than two regular schools violates intended school allocation.
b) Fewer than 300 students may cause districts to not bother serving handicapped students, or, if they do, to have fewer than five per school, e.g., 3.52 percent of the school-aged population in Vermont is handicapped (BEH Data Notes, September 1977). Hence, a school must have 142 students on average to reflect five handicapped students there (and district would require a minimum of 284 students and two such regular schools).

Table A.5

PARTITIONING OF SMALL STRATUM DISTRICTS INTO ITS COMPONENT PARTS

Category Number	Category Description	
	# Regular Schools	District Enrollment
1	0	< 300
2	0	≥ 300
3	1	< 300
4	1	≥ 300
5	≥ 2	< 300

Table A.6

DECOMPOSITION OF SMALL STRATUM DISTRICTS INTO CATEGORY BY PRESENCE/ABSENCE OF SPECIAL SCHOOLS

Category Number	Service		Total
	S	$\bar{S}$	
1	14	69	83
2	8	35	43
3	1	1756	1756
4	2	798	800
5	1	1050	1051
Total	26	3708	3734

All S-districts in SS were formed as one stratum, whereas to reflect our uncertainty over school sample size in the SS-$\bar{S}$ districts, four regular school strata were formed--Table A.7 provides the details.

Next, districts were to be selected without replacement (which guarantees all selections are distinct), and hence, the inclusion probability must be no larger than 1.0. To achieve this, four s-stratum districts were each placed in a separate strata and selected with certainty (i.e., with probability 1.0)--Table A.8 contains the details.

Table A.7

STRATIFICATION OF SMALL STRATUM DISTRICTS THAT DO NOT HAVE SPECIAL SCHOOLS

Stratum	Category(ies)	# Districts	Expected School Workload[a] (Relative to Full Support)
1	1,2	104	0
2	3	1756	.5
3	4	798	.5
4	5	1050	1

a/ Table B.5 gives number of regular schools present, n_R in district according to CIC file and information allows this index to be formed (i.e., $\min(n_R, 2)/2$).

Table A.8

IDENTIFICATION OF SELF-REPRESENTING DISTRICTS

Stratum	Identification				Size Measure[a]
	State	County	District	City	
5	NY	47	370000	New York	10.30
6	IL	31	585000	Chicago	5.63
7	CA	37	161500	Los Angeles	5.72
8	PA	101	174000	Philadelphia	4.02
					25.67

a/ In Section II.A.4 it was shown that any S-district having $X_i > 3$ constitutes a self-representer.

In all then, 11 broad strata were formed on the district frame. To preserve the intended school sample sizes, allocation of the district sample size should be proportional to the size measure--Table A.9 provides the details.

Now in order to guarantee that all districts are distinct, without replacement sampling was employed. As such, each district in the self-representing strata constituted a separate stratum and was selected with certainty. The disproportionality so induced (i.e., 8.6 → 4) was reallocated to the

Table A.9

IDENTIFICATION OF DIRECT STRATA

	S	$\bar{S}$
SR	4 (25.7, 8.6)[a/]	0 (-)
Normal	805 (167.7, 55.9)	9,782 (309.1, 154.5)
SS	26 (1.64, .6)	104 (.3, .2)
		1,756 (2.4, 1.2)
		798 (6.1, 3.1)
		1,050 (2.2, 1.1)
Total	835 (195, 65)	13,490 (320, 160)

[a/] (a, b) represent:
a - sum of size measure for stratum.
b - proportional allocation of 65 S-districts or 160 $\bar{S}$-districts (as applicable).

normal S stratum (i.e., 60.5 now) in order that the district sample will be preserved (the school sample size would have taken care of itself without reallocation). Finally, to realize the correct number of "full support" districts in the small stratum, it was decided to over-represent this broad stratum. Specifically, proportional allocations were rounded to the nearest integer (minimum of one) and then doubled (partial justification can be seen from Table A.7 in that such a scheme generates the correct number of "equivalents" of full support districts). Table A.10 summarizes the final allocation.

b. Indirect Stratification of District Frame The study design called for stratification to reflect dispersion with respect to geographic location (via census regions), district size (via enrollment), special education services offered (via service level), and urbanicity (via SMSA indicator). To introduce these, a device known as "zoning" partial frames was used (separately in normal-S frame, normal-$\bar{S}$ frame, and stratum 3 of SS-$\bar{S}$ frame--all other broad strata are unable to support further stratification and still satisfy the design requirement of supporting a proportional allocation of two

Table A.10

ALLOCATION OF DISTRICT SAMPLE

	S	$\bar{S}$	Total
SR	4	-	4
Normal	60	154	214
SS	2	2 2 6 2	14
Total	66	166	232

districts per ultimate stratum). Specifically, each partial frame was first sorted by census region. Secondly, within each census region and partial frame, districts were then sorted by district size. To minimize changes across census region-district size boundaries, ordering was alternated smallest to largest, largest to smallest, etc. Thirdly, within each census region-district size category on a partial frame, districts were ordered by service level (again in alternating fashion). Fourthly, within each census region-district size-service level category on a partial frame, districts were ordered (alternately) by SMSA. Finally, in each ultimate category of each partial frame, districts were ordered by the estimated district size measure. Each partial frame was then partitioned into equal-sized zones (based on the district size measure) that would support a proportional allocation of two sample districts. In lieu of "splitting" districts at the boundary, heuristic rules were developed for adjusting stratum boundaries so as to reflect strata having only complete districts. In all, 110 indirect strata (and 8 original direct (broad) strata) were formed on the district frame--Table A.11 provides the details.

6. Selection of District Sample for Basic Study

Two sample districts were selected without replacement in each ultimate strata (except for self-representers where, of course, only one district was selected) using probability proportional to the estimated

Table A.11

STRATIFICATION ON DISTRICT FRAME

District Type	Direct Strata		Indirect Strata	Total Strata
SR	4	(one per self-representer)	-	4
Normal	0	(normal-S)	30	30
	0	(normal-$\bar{S}$)	77	77
SS	1	(SS-S)	-	1
	1	(SS-$\bar{S}$ cat. 1)	-	1
	1	(SS-$\bar{S}$ cat. 2)	-	1
	0	(SS-$\bar{S}$ cat. 3)	3	3
	1	(SS-$\bar{S}$ cat. 4)	-	1
	8		110	118

district size measure. The distribution of the sample of districts over the levels of control variables is given in Table A.12. The slight deviations from proportional allocations observed in Table A.12 can be accounted for by:

a) Randomization used in selecting sample within zones.

b) Causing zones to contain only entire districts.

c) Rounding error in using direct stratification for self-representers, small districts (including 4 substrata within).

7. Selection of Level 2 Subsample of Districts

The study design calls for seven S-districts and 17 $\bar{S}$-districts to be selected into the Level Two subsample. As such, under proportional allocation, S-strata should reflect a cumulative size measure of approximately 27.9 (i.e., 195/7) whereas $\bar{S}$-strata should reflect a cumulative size measure of approximately 18.8 (= 320/17). Embedding this into the original broad strata produced the allocation of Table A.13.

The SS was further partitioned into:

Level 2 Stratum 1 { SS-S
SS-$\bar{S}$ (strata 1,2,3) } (see Table A.7) .

Level 2 Stratum 2 SS-$\bar{S}$ (stratum 4)

Such a partitioning reflects the reality that stratum one sample districts fail to provide a full complement of schools for the study (i.e, fewer than two regular schools) whereas stratum two districts do provide full school support (but may suffer in their student support).

As in the School Component, zoning (i.e., indirect stratification) was used to supplement the five direct strata on the Level 2 frame and thereby provide greater control over geographic dispersion, district size, service level, and urbanicity. Specifically, the ordered normal-S frame was partitioned into six zones (or equivalently, every five zones for the School Component were collapsed) and the normal-$\bar{S}$ frame was partitioned into sixteen zones (or equivalently, every 5 of the first 65 zones were collapsed and every 4 of the remaining 12 were collapsed). In all, then, 25 strata were formed on the entire frame. A single district was then selected at random from the School Component Sample districts associated with each ultimate Level 2 stratum. The realized distribution of Level 2 sample districts over the levels of control variables is given in Table A.14.

8. Summary of District Samples

The district sample supporting the School Component consists of 232 LEAs--Table A.15 provides the details for specific substudy involvement. For completeness, Table A.16 provides the distribution of sample districts by state and activity. Furthermore, Figure A.1 provides a county-level depiction of the overall sample sites within the geographic confines of the study.

9. Responding Status of District Sample

Of the 232 districts selected to support the School Component, 22 districts failed to cooperate, and 2 districts were ineligible (one was a state/special facility and one did not serve handicapped students). Table A.17 provides the marginal distribution of nonresponding districts over the levels of each control variable used in forming indirect strata (zones) on the district frame. During the implementation phase of the study, district nonresponse was analyzed (raw as well as weighted by the inverse of the selection probability) on a flow basis in order to assess whether nonresponse was occurring in a nonrandom fashion. No such tendency could be supported.

Table A.12

DISTRIBUTION OF SAMPLE DISTRICTS ACROSS LEVELS OF CONTROL VARIABLES[a]

Level	Census	Region	District	Size	Service	Level	SMSA
1	53	(54.82)	0	(.76)	62	(62.69)	37(40.88)
2	66	(65.81)	4	(4.80)	4	(3.31)	112(113.18)
3	74	(73.54)	11	(7.72)	155	(157.9)	83(77.94)
4	39	(37.83)	12	(9.51)	11	(8.10)	-
5	-		44	(44.96)	-		-
6	-		31	(33.88)	-		-
7	-		49	(45.19)	-		-
8	-		42	(43.04)	-		-
9	-		39	(42.14)	-		-
Total	232		232		232		232

[a] Figures in parentheses represent the exact proportional allocation of the assigned sample size to frame strata (based on estimated district size measure), and are intended to illustrate the control that the study design would be expected to realize over a large number of repeated selections of the sample.

Table A.13

ALLOCATION OF LEVEL 2 SUBSAMPLE TO BROAD SCHOOL COMPONENT STRATA

Broad Strata	Proportional Allocation	Actual Allocation
SR	.92	1
Normal-S	6.02	6
Normal-$\bar{S}$	16.41	16
SS	.64 (= .06 + .58)	2

Table A.14

DISTRIBUTION OF LONGITUDINAL LEVEL 2 DISTRICTS ACROSS LEVELS OF CONTROL VARIABLES

Level	Census	Region	District	Size	Service	Level	SMSA
1	7	(6.17)	0	(.11)	7	(6.11)	5(4.75)
2	6	(7.12)	1	(.69)	1	(.38)	15(11.85)
3	8	(7.61)	1	(.95)	16	(16.76)	5(8.40)
4	4	(4.10)	0	(1.07)	1	(.98)	-
5	-		4	(4.75)	-		-
6	-		2	(3.53)	-		-
7	-		7	(4.66)	-		-
8	-		5	(4.41)	-		-
9	-		5	(4.83)	-		-
Total	25		25		25		25

Table A.15

ALLOCATION OF SAMPLE DISTRICTS TO STUDY COMPONENTS

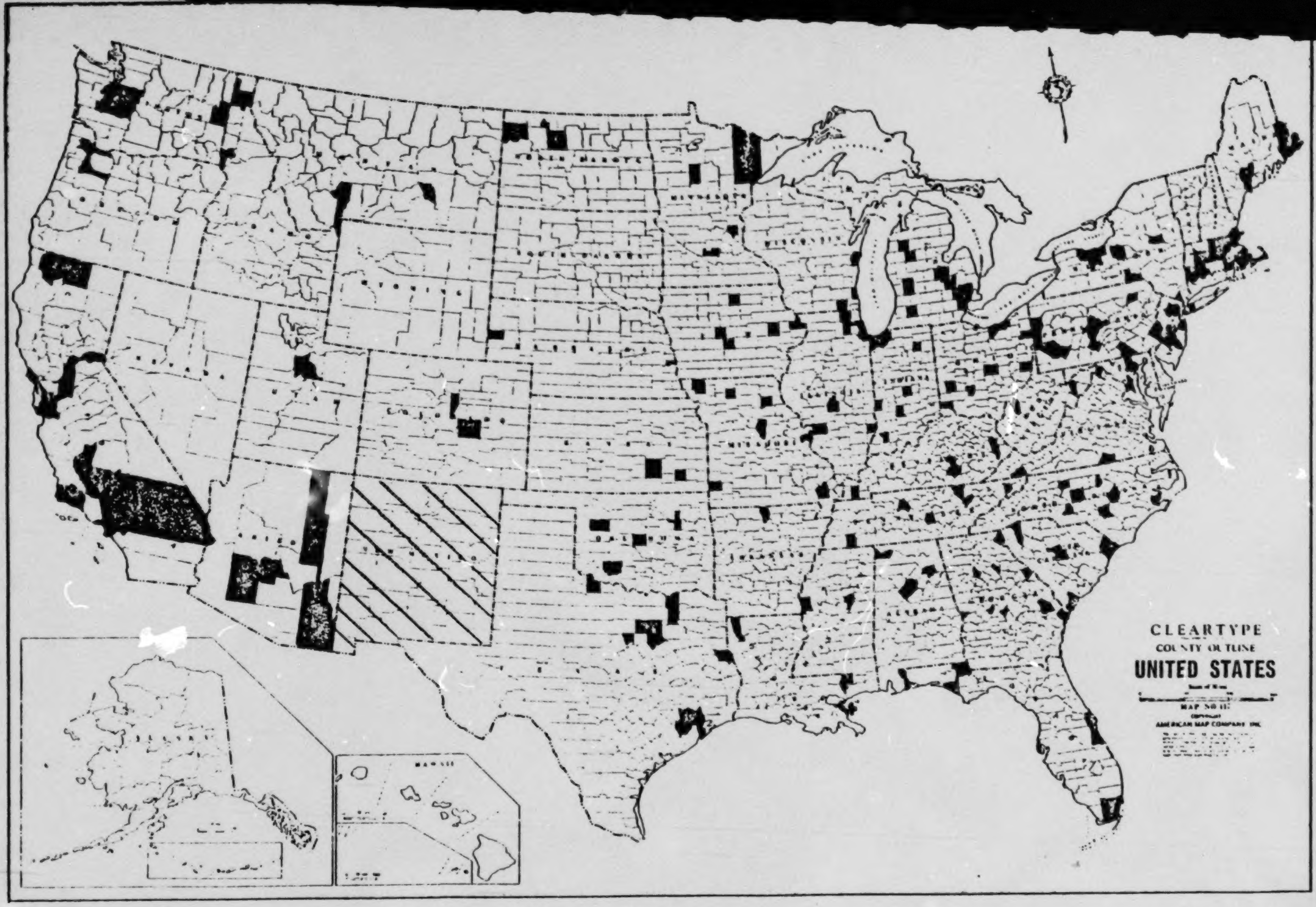
Activity Level	Substudy Involvement	Number of Sample Districts Supporting Activity
1	Regular School Component Special School Component Longitudinal Level 1 Component	58
2	Regular School Component Special School Component Longitudinal Level 1 Component Longitudinal Level 2 Component	8
3	Regular School Component Longitudinal Level 1 Component	149
4	Regular School Component Longitudinal Level 1 Component Longitudinal Level 2 Component	17

Table A.16

SCHOOL COMPONENT SAMPLE DISTRICTS BY STATE AND ACTIVITY LEVEL[a/]

State Name	Activity Level 1	2	3	4	Total Number of Sample Districts
Alabama	1	0	0	2	3
Arizona	1	0	4(1)	0	5
Arkansas	0	0	1	0	1
California	3	0	13	1	17
Colorado	1	0	1	0	2
Connecticut	1	0	1	0	2
Florida	6	0	0	0	6
Georgia	2	1	5	0	8
Idaho	0	0	1	1	2
Illinois	2	0	8(1)	0	10
Indiana	4(1)	0	4(1)	1	9
Iowa	0	0	5	0	5
Kansas	0	0	2	0	2
Kentucky	0	0	5	0	5
Louisiana	2	0	1	0	3
Maine	0	0	3	0	3
Maryland	3	0	0	0	3
Massachusetts	1	0	9	0	10
Michigan	4	0	6	2	12
Minnesota	0	0	4	0	4
Mississippi	1	0	2	0	3
Missouri	2	0	5	1(1)	8
Montana	0	0	2(2)	0	2
Nebraska	0	0	2(1)	0	2
New Jersey	0	0	10(3)	3	13
New York	2	0	6	1	9
North Carolina	2	1	5	0	8
North Dakota	0	0	2	0	2
Ohio	0	1	6	1	8
Oklahoma	1	0	3	0	4
Oregon	1	0	2(1)	0	3
Pennsylvania	1	2	10	1	14
Rhode Island	1	0	1	0	2
South Carolina	3	0	1	1	5
Tennessee	2	0	3	1	6
Texas	3	1(1)	8(1)	0	12
Utah	1	0	0	0	1
Virginia	1	1	2	0	4
Washington	4	1	1	1	7
West Virginia	1	0	2	0	3
Wisconsin	1	0	3	0	4
Total	58	8	149	17	
Grand Total	66	232	166		232

a/ Figures in parentheses represent the number of sample districts included in count that were expected to require only a partial workload in the field.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UNITED STATES
AMERICAN MAP COMPANY INC.

Figure A.1. Distribution of district sample (by county) over 48 contiguous States and D.C.

Table A.17

DISTRIBUTION OF NONRESPONDING DISTRICTS OVER LEVELS OF CONTROL VARIABLES USED FOR STRATIFICATION[a]

Level	Control Variable			
	Census Region	District Size	Service Level	SMSA
1	6	0	5	4
2	6	0	0	12
3	6	2	16	8
4	6	3	3	-
5	-	6	-	-
6	-	3	-	-
7	-	4	-	-
8	-	3	-	-
9	-	3	-	-
	24	24	24	24

[a] See Table A.12 for the intended district sample size for each cell.

B. School Sampling Procedures

Selection of the school sample in a given district entailed:

1) Receipt of summary information on District Data Sheet (including agreement to participate) from district.
2) Determination of sample size allocation for district (by school type).
3) Construction of school frame (by school type) for district.
4) Stratification of each school frame in district.
5) Selection of sample schools.
6) Recording of responding status of sample schools.

Each subtask will be addressed in turn.

1. Receipt of Summary Information

Sample districts were asked to complete a School Data Sheet that included information on:

a) Number of handicapped students served in district (by school type).
b) Identification of regular schools not having any handicapped students.

c) Identification of special schools employing only a pull-out program from regular schools.

d) Addition (deletion) of any new (closed) regular or special schools considered to be under some administrative control of the sample district.

To aid in these activities, sample districts were provided with a list of schools (by type) that are associated with the district according to the CIC file, data on the number of schools (by type), enrollment in district schools (by type), and the estimated number of handicapped students (by type).

2. School Sample Size Allocation

The study design called for selection of an average of two regular schools per sample district (both S and $\bar{S}$)and one special school per S-sample district. In addition, a constant workload of three schools/S-district and two schools/$\bar{S}$-district was considered optimal. To achieve this, denote

$\gamma_S(i)$ = allocation of special schools to district i,

$\gamma_R(i)$ = allocation of regular schools to district i,

then

$$\gamma_S(i) = \frac{f_S X_S(i)}{\pi_i}$$

$$\gamma_R(i) = \begin{cases} \dfrac{f_{R|S} X_{R|S}(i)}{\pi_i} & \text{i an S-district } (= \gamma_{R|S}(i)) \\[2ex] \dfrac{f_{R|\bar{S}} X_{R|\bar{S}}(i)}{\pi_i} & \text{i an } \bar{S}\text{-district } (= \gamma_{R|\bar{S}}(i)) \end{cases} .$$

Such an allocation has the properties:

a) Meets constant workload

1. $$\gamma_S(i) + \gamma_{R|S}(i) = \frac{f_S X_S(i) + f_{R|S} X_{R|S}(i)}{\pi_i} = 3 .$$

2. $$\gamma_{R|\bar{S}}(i) = \frac{f_{R|\bar{S}} X_{R|\bar{S}}(i)}{\pi_i} = 2 .$$

b. Under perfect size measures, total school sample size for Special and Regular School Component are guaranteed. For example,

$$Y_S(t) = \sum_{i \varepsilon S} \frac{f_S X_S(i)}{\pi_i}$$

$$= \frac{65}{X_S(+)} \hat{X}_S(+)$$

$$= 65 \text{ (if sample estimates population total exactly)} \quad .$$

Similarly,

$$Y_{R|S}(+) = 130 \text{ and } Y_{R|\bar{S}} = 320, \text{ so that}$$

$$Y_R(+) = 450 \quad .$$

c) The condition of "perfect size measures" can be adjusted for using the School Data Sheet information so that school sample sizes are exactly met in theory.

To "adjust" the school sample size allocation (by type) to district i, we have size measures estimated from the district frame, and hopefully improved estimated based on the School Data Sheet--Table A.18 summarizes this position.

Table A.18

SCHEMATIC OF DATA ELEMENTS UNDER PROPOSED UPDATE OF STUDY SIZE MEASURES

Parameters of Interest	Initial Estimates (frame)	Revised Estimates (school data sheet)
$X_S(i)$	$\hat{X}_S(i)$	$\hat{E}_S(i)$
$X_{R\|S}(i)$	$\hat{X}_{R\|S}(i)$	$\hat{E}_{R\|S}(i)$
$X_{R\|\bar{S}}(i)$	$\hat{X}_{R\|\bar{S}}(i)$	$\hat{E}_{R\|\bar{S}}(i)$

With this in mind, let

$$\hat{E}_S(+) = \sum_{i=1}^{232} \frac{\hat{E}_S(i)}{\pi_i} \quad ,$$

$$\hat{E}_{R|S}(+) = \sum_{i=1}^{232} \frac{\hat{E}_{R|S}(i)}{\pi_i} ,$$

$$\hat{E}_{R|\bar{S}}(+) = \sum_{i=1}^{232} \frac{\hat{E}_{R|\bar{S}}(i)}{\pi_i} ,$$

and

$$f^*_S = \frac{65}{\hat{E}_S(+)} ,$$

$$f^*_{R|\bar{S}} = \frac{130}{\hat{E}_{R|\bar{S}}(+)} ,$$

$$f^*_{R|\bar{S}} = \frac{320}{\hat{E}_{R|\bar{S}}(+)} .$$

Then set the revised allocations to be

$$Y^*_S = f^*_S \frac{\hat{E}_S(i)}{\pi_i} ,$$

$$Y^*_{R\ S} = \frac{f^*_{R|S}\ \hat{E}_{R|S}(i)}{\pi_i} ,$$

$$Y^*_{R\ \bar{S}} = \frac{f^*_{R|\bar{S}}\ \hat{E}_{R|\bar{S}}\ (i)}{\pi_i} ,$$

which guarantee the total sample sizes by component (i.e., are not dependent on perfect size measures). Notice, however, that although

$$Y_S(+) = 65,\ Y^*_{R|S}(+) = 130,\ Y^*_{R|\bar{S}}(+) = 320 ,$$

that a given district may be allocated more (or less) than three schools (for S-districts) and two schools (for $\bar{S}$-districts). Specifically, districts get a larger allocation when, for special schools

$$\frac{\hat{E}_S(i)}{\hat{E}_S(+)} > \frac{\hat{X}_S(i)}{\hat{X}_S(+)} \quad ,$$

and for regular schools, when

$$\frac{\hat{E}_{R|S}(i)}{\hat{E}_{R|S}(+)} > \frac{\hat{X}_{R|S}(i)}{\hat{X}_{R|S}(+)} \qquad \text{, for S-district}$$

$$\frac{\hat{E}_{R|\bar{S}}(i)}{\hat{E}_{R|\bar{S}}(+)} > \frac{\hat{X}_{R|\bar{S}}(i)}{\hat{X}_{R|\bar{S}}(+)} \qquad \text{, for } \bar{S}\text{-district} \quad .$$

One's ability to adjust at the second stage for inadequacies at the first stage of sampling are therefore constrained by:

a) Presence of ($\overset{*}{\gamma}_S(i)$, $\overset{*}{\gamma}_{R|S}(i)$, $\overset{*}{\gamma}_{R|\bar{S}}(i)$) schools (as the case may be) in the ith sample district.

b) The trade-off between attaining desired sample sizes and the realization that school characteristics are secondary to those of the district in assessing IEP content (and hence that the marginal utility of "extra" school data may be minimal).

For the sake of completeness, it should be noted that $\{\overset{*}{\gamma}_S(i), \overset{*}{\gamma}_{R|S}(i), \overset{*}{\gamma}_{R|\bar{S}}(i)\}$ are not constrained to be integers. Apart from heuristic rounding rules to achieve integer allocations, consideration was given to implementing controlled selection to avoid rounding errors while preserving total sample sizes. Time pressures and cost implications, however, precluded this approach and heuristic rounding rules were applied. Despite this shortcoming, it will later be shown that re-allocation of the student sample size would further encourage the realization of a self-weighting sample of students.

Unfortunately, all returns on the school data sheet were not on hand prior to making the school allocations. As such, and in light of the late OMB approval received for this study, the school sample was selected in essentially four batches of approximately 50 districts each (late districts were cleaned up in a fifth batch)--Table A.19 contains the details.

In making these allocations, initial estimates of underlying parameters (i.e., $\hat{X}_S(i)$, $\hat{X}_{R|S}(i)$, $\hat{X}_{R|\bar{S}}(i)$) were used for a given district whenever

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Table A.19

ALLOCATION OF SCHOOL SAMPLE SIZE BY BATCH AND SCHOOL TYPE

Batch	Number of Districts Allocated To	Number of Schools Allocated	
		Regular	Special
1	36	72	10
2	77	154	28
3	58	119	18
4	31	76	11
5	6	23	8
Total	208	444	75

revised estimates were not available (i.e., $\hat{E}_S(i)$, $\hat{E}_{R|S}(i)$, $\hat{E}_{R|\bar{S}}(i)$). In addition, district nonresponse was adjusted for on a flow basis, in order to realize desired sample sizes.

3. Construction of School Sampling Frames

For each sample district, a list of schools was made from the CIC file. Schools designated as closed or not serving handicapped students were purged from these frames, and new schools (i.e., schools under at least partial administrative control of the districts that were missing on the CIC files) were added. The revised frame included information on school name, grades taught (low grade, high grade), enrollment, school type, and a CIC identification number (state, district ID, subdistrict ID (if applicable), school ID)). In addition, regular schools known to enroll only handicapped students not having current year IEPs, and special schools only serving handicapped children from regular schools on a pull-out basis, were so identified. Finally, the revised number of handicapped students enrolled in the district (by school type) was allocated to schools (by type) in proportion to the CIC enrollment to serve as the estimated school size measure (by type). Exceptions to this latter practice occured whenever districts provided the number of handicapped students enrolled in each school under their jurisdiction, or when certain schools were designated by the district as serving a disproportional (based on enrollment) number of handicapped students.

4. Stratification of School Frame in Each Sample District

The school frame in each sample district was first stratified by school type (actually, separate frames formed). Each subframe was then ordered by low grade taught, by high grade taught, and enrollment (in that order). Strata (zones) were then sequentially formed on each subframe so as to contain approximately an equal estimated number of enrolled handicapped students (by subframe). The number of zones per subframe was set equal to the revised district allocation of sample schools of the associated type.

5. Selection of Sample Schools

One school was selected from each zone on each subframe using probabilities proportional to the estimated number of enrolled handicapped students. In all, 519 schools were selected, including 444 regular and 75 special schools. As was previously discussed, to accomodate late OMB clearance and facilitate data collection efforts, the school sample was dynamically allocated and selected for transmittal to the field over a seven week period (see Table A.19).

6. Responding Status of Sample Schools

The responding status of the 519 schools selected to support the School Component is summarized in Table A.20. In all fairness, additional school (and student) data were received in July 1979 after commencement of preliminary data analyses tasks. To facilitate the meeting of tight deadlines, such data were treated as nonresponse and excluded from further analyses.

Table A.20

RESPONDING STATUS OF SCHOOL COMPONENT SAMPLE SCHOOLS BY TYPE

		Responding Status		
School Type	Number Selected	Responding	Nonresponding	Ineligible
Regular	444	438	5	1[a]
Special	75	70	4	1

[a] An additional sample school enrolled handicapped students but did not presently complete IEPs for their students. As such, relative to the multistage student sample, this school was classified as ineligible rather than as a respondent as was done in this table.

C. Student Sampling Procedures

The School Component is supported by three nested student samples:

1) Basic Survey student sample.
2) Level 1 Longitudinal Substudy student sample.
3) Level 2 Longitudinal Substudy student sample.

Each will be discussed in turn.

1. Basic Survey Student Sample

Selection of the student sample entailed:

a) Listing of handicapped students enrolled in a sample school.
b) Purging of ineligibles from frame.
c) Ordering of frame.
d) Student sample size allocation for each school.
e) Selection of student sample.
f) Recording responding status of student sample.

Each subtask will be addressed in turn.

a) Listing of Handicapped Students. Prior to the site visit to each school, the principal (or designate) was asked to prepare a list of all handicapped students enrolled in the school as of 1 December, 1978. Information concerning age, presence of current year IEP, and identification of the special education teacher most knowledgeable about the current year IEP, were also required for each listed handicapped student. In isolated cases, such a list had to be constructed by the RTI field staff using central records held at the school.

b) Purging of Ineligibles from Handicapped Lists. To reflect the intended target population, students for whom no current year IEP had been prepared, and age-ineligible students (i.e., students older than 21 and younger than 3 years old) were deleted from the list of otherwise eligible handicapped students at the school. Finally, student duplicates (if any) were removed at this time. In most cases, school personnel performed these activities prior to the arrival of the RTI data collectors.

c) Ordering of Student Frame. No direct stratification was used on student frames. Control over the composition of each student sample was exercised by ordering the student frame by the special education teacher associated with each student. In the absence of teacher information, every effort was made to order the student frame using a surrogate variable (e.g., handicapping condition). Selection of a systematic sample from such an ordered frame will then tend to maximize the number of distinct special education teachers associated with sample students.

d) Student Sample Size Allocation. The study design called for the selection of an average of five eligible handicapped students at each regular school, and an average of eight eligible handicapped students at each special school. Consideration was given to allocating these student sample sizes based on school-level data collected in the field. To explain the underlying mechanism, let

Π_i = selection probability for district i

$\Pi_{j \cdot i}$ = conditional selection probability for school j in district i given district already selected

H_{ij} = number of handicapped students on frame at school j in district i

m_i = number of sample schools in district i,

and form

$$\hat{H}_S(+) = \sum_{i=1}^{232} \sum_{j=1}^{m_i} \frac{H_{ij}}{\pi_i \pi_{j \cdot i}} I_S(j) \quad ,$$

$$\hat{H}_R(+) = \sum_{i=1}^{232} \sum_{j=1}^{m_i} \frac{H_{ij}}{\pi_i \pi_{j \cdot i}} I_R(j) \quad ,$$

where

$$I_S(j) = \begin{cases} 1 & \text{if school } j \text{ is a special school} \\ 0 & \text{otherwise} \end{cases}$$

$$I_R(j) = \begin{cases} 1 & \text{if school } j \text{ is a regular school} \\ 0 & \text{otherwise} \quad . \end{cases}$$

Self-weighting of the ultimate student sample (by school type) could have been further encouraged by then allocating n_{ij} students to school j in district i according to

$$n_{ij} = \begin{cases} 520 \dfrac{\dfrac{H_{ij}}{\pi_{i_*}\pi_{j\cdot i}}}{H_S(+)} & \text{if school j is a special school} \\[2ex] 2250 \dfrac{\dfrac{H_{ij}}{\pi_{i_*}\pi_{j\cdot i}}}{H_R(+)} & \text{if school j is a regular school,} \end{cases}$$

where 520 and 2250 are the overall desired student sample sizes for their school type. In theory, such an approach would have required interaction between RTI and the field staff collecting data at each school concerning first the magnitude of H_{ij}, and, once all sample schools had been contacted, to assign the desired student sample size allocation. As previously noted, however, late receipt of OMB clearance for the study required that the school sample be dynamically allocated and selected, and that field collection procedures at these sample schools be carried out on a flow basis. In light of the survey economics associated with the allocation of a fixed student sample size to each school (specifically, simpler field procedures and removal of the need for field staff to interact with sampling staff at RTI in arriving at student sample size allocations), the decision was made to select five students at every regular school, and eight students at every special school. The price paid for this simplicity came in the form of increased variation in the ultimate student sampling weights and hence, in the probable deterioration of precision levels associated with parameter estimates.

e) Selection of the Basic Survey Student Sample. The student sample at each school was selected using a circular systematic selection strategy with a random start-point.[3] Specifically, if n students were to be selected from an ordered frame of N students, the sample would consist of frame members having sequential numbers

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[3] Field procedures allowed for using a random quota sample in cases where the existence of a current year IEP could not be determined. This option was exercised at only one sample school and therefore does not warrant elaborate documentation.

$$f_k = \begin{cases} r + kc \quad (\text{mod } N) & \text{if } N \neq r + kc \\ N & \text{otherwise} \end{cases} \qquad k = 0,1,2,\cdots,n-1$$

where

$$c = [\tfrac{N}{n}] \qquad \text{(i.e., integer part of N divided by n)}$$

r = random integer number selected to be no larger than N and no smaller than 1.

Proceeding in such a fashion guaranteed that exactly n sample students were realized at each sample school (provided $N \geq n$) in contrast to the usual systematic selection rule which produces a random sample size (whenever $N-nc > 0$). The added wrinkle of a circular systematic selection mechanism was deemed appropriate in light of the high data processing costs associated with each sample member (i.e., did not want to leave to chance the realization of a larger than intended student sample size at any school).

f) Responding Status of Basic Survey Student Sample. Field procedures resulted in the selection of 2705 sample students, including 2162 students enrolled in regular schools, and 543 students enrolled in special schools. Table A.21 contains the responding status of this student sample.

By way of explanation, ineligibles reflect inefficiency in the student frame constructed at each school (usually due to the determination that the list of handicapped students was not completely purged of ineligibles) whereas nonrespondents are primarily associated with the non-receipt of letters of permission (required in several districts) and/or the inability of the field staff to locate an IEP that was said to exist for a given sample student. Finally, only students having both an IEP Checklist and a Student Characteristic Questionnaire (SCQ) for the current year were designated as respondents.

2. Level One Longitudinal Student Sample

Selection of the Level 1 student sample entailed:

a) Identification of Basic Study sample students having retrospective year IEP present at the school.

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Table A.21

RESPONDING STATUS OF STUDENTS SELECTED TO SUPPORT THE BASIC SURVEY

School Type	Sample Size Selected	Responding Status		
		Responding	Nonresponding	Ineligible
Regular	2163	2126	25	12
Special	542	531	5	6
Total	2705	2657	30	18

b) Selection of Level 1 student subsample.

c) Recording the responding status of Level 1 student subsample.
Each subtask will be discussed in turn.

a) Identification of Level 1 Eligibles. For each Basic Survey sample student, a determination was made as to the presence (or absence) of an IEP for the previous school year. The teacher most knowledgeable about each previous year IEP (when present) was also recorded.

b) Selection of Level 1 Student Subsample. An attempt was made to select two Level 1 eligibles at random and without replacement at each sample school. To facilitate possible subsampling at a later time, the order of selection into the component was also recorded.

c) Responding Status of Level 1 Student Subsample. In all, 828 Basic Survey students at 436 schools were selected to support the Level 1 Longitudinal Component. Table A.22 provides the responding status of this student sample by school type.

In order to qualify as a respondent for the Level 1 Longitudinal Substudy, both the previous year IEP and SCQ (in addition to these documents for the current year) had to be available in time for analysis.

3. Level Two Longitudinal Student Sample

The Level 2 Longitudinal student sample was formally intended to consist of the first-selected Level 1 sample student at each school in a Level 2 sample district. For the most part, however, student level data collected to support this component was not to be analyzed in accordance with

Table A.22

RESPONDING STATUS OF STUDENTS SELECTED IN FIELD TO SUPPORT THE LEVEL 1 LONGITUDINAL COMPONENT[a]

School Type	Number of Students Selected	Responding Status		
		Responding	Nonresponding	Ineligible
Regular	703	675	18	10
Special	125	121	3	1
Overall	828	796	21	11

[a] Field staff collected at least one eligible Level 1 student at 436 schools (372 regular, 64 special).

its underlying probability structure. Rather, it was planned that only unweighted analyses would be carried out. With this in mind, the Level 2 student sample was informally supplemented by selecting one Basic Survey sample student at random at those schools having no Level 1 eligibles. Furthermore, no Level 2 nonresponse was experienced at any levels (i.e., districts, schools, and students) and, by not necessarily requiring certain documents to be present, no ineligibility was incurred in the ultimate student sample. In all, 61 students (53 regular, 8 special) were selected to support Level 2 activities.

III. DOCUMENTATION OF FACILITY COMPONENT SAMPLING PROCEDURES

The Facility Component was supported through a separate two-stage cluster design having facilities at the first stage, and handicapped students at the second (final) stage of sampling. Discussions will emphasize procedures used at the first stage of sampling (i.e., facilities) in order to fully establish the validity of the realized sample at the national level. Student sampling procedures coincide with those employed at special education schools in the School Component except for one minor deviation that will briefly be described. Each stage of sampling will be discussed in turn.

A. Facility Sampling Procedures

Selection of the facility sample entailed:

1) Construction of an acceptable facility frame.
2) Allocation of facility sample.
3) Stratification of facility sample.
4) Selection of initial facility sample.
5) Post-stratification of initial facility sample.
6) Allocation of final facility sample to post-strata.
7) Selection of final facility sample.
8) Responding status of final facility sample.

Each subtask will be discussed in turn.

1. Construction of an Acceptable Facility Frame

The matter of constructing an adequate frame of non-LEA administered institutions providing special education and related services to handicapped students was discussed at length in the final report on the design of the IEP Survey.[4] Work proceeded in the following order:

a) Lists of special education facilities were obtained from CIC and the Office of Civil Rights (OCR).

b) Candidate frames were hand-matched based on facility name, address, city, and zip code.

c) A combined frame was formed (matched, CIC-only, and OCR-only).

d) Combined file was hand-matched with 1977 "437 file" of institutions receiving P.L. 89-313 monies (i.e., program code 2 and agency type 2) using name (and handicapping conditions, when available) to furnish some confidence that a large part of the monies/participants were being accounted for by our multiple list frame construction efforts.

e) A revised combined file was formed (437, CIC-OCR matched-only, CIC-only, OCR-only).

f) Revised combined file was purged of ineligibles (i.e., facilities in Alaska and Hawaii were purged since they are outside geographic confines of the study; New Mexico and Nevada facilities were removed since these states refused to participate; all facilities listed on CIC files that are administered by LEAs were removed since these were eligible for the School Component; facilities in an ongoing BEH study of facilities were deleted at the request of the project officer.

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[4] Pyecha, J. N., Drummond, D. J., et al. Design of a National Survey of Individualized Education Programs for Handicapped Children. Research Triangle Park, N.C.: Research Triangle Institute, November 1978.

The end product of these efforts is then the Facility Component frame--details are provided in Table A.23. Reservations were repeatedly expressed to BEH concerning the quality of this realized frame, especially with regard to intended population coverage (i.e., inclusion of all population members on frame), and frame inefficiency (i.e., inclusion of only population members on frame; freedom from multiple listings of same unit on frame; ability to identify frame members in field).

Table A.23

NUMBER OF INSTITUTIONS BY SOURCE ON THE FACILITY FRAME

Source File	Number of Facilities on File
437	656
Matched but not on 437	251
CIC only and not on 437	1,223
OCR only and not on 437	2,947
Total	5,077

2. Allocation of Initial Facility Sample

Previous studies indicated that facilities not listed on the 437 file exhibited a high rate of ineligibility (insofar as facilities no longer being in existence or field staff not being able to locate the facility based on the frame information). Furthermore, 437 facilities, by definition, were recipients of P.L. 89-313 monies in 1977 and were therefore known to have been in existence at that time (as opposed to OCR-only facilities that were included perhaps on pre-1976 lists). For these reasons, a two-stage selection procedure was decided on:

Stage 1: Selection of approximately 150 facilities
for pre-screening at the state level.

Stage 2: Subsampling of approximately 75 facilities
to formally support the Facility Component.

The stage 1 sample size was allocated to the subframes defined by the columns of Table A.23 so as to approximately equalize the average sampling rate of 437 and matched (but not 437) facilities, and to equalize the sampling rate of OCR-only and CIC-only facilities (but at about one quarter of the previous rate)--Table A.24 provides the details.

Table A.24

ALLOCATION OF INITIAL FACILITY SAMPLE BY FRAME SOURCE[a/]

Number of Facilities Allocated to			
437	CIC-OCR Matched	CIC-only	OCR-only
51 (.0777)	22 (.0876)	24 (.0196)	58 (.0197)

[a/] ( ) denotes the average sampling rate on given subframe.

3. Stratification of Initial Facility Sample

Stratification was carried out independently on each subframe. For ease of exposition, stratification on each subframe will be discussed in turn.

a) 437 Subframe: In preparation for specifying strata on this subframe, facilities were separated into the four census regions (see Table A.1), and ordered by the amount of the grant. This latter ordering was from low to high in the first region, high to low in the second, low to high in the third, and high to low in the fourth. This method produces a more continuous listing (i.e., contiguous facilities are more similar in size of grant) than would otherwise be offered under a strict numerical ordering based on the same variables. Strata of equal total grant amount were then sequentially formed on the order frame. The total number of such strata was set equal to the desired sample size.

b) Non-437 Subframes: In preparation for defining strata on each such subframe, facilities were separated into the four census regions and ordered alphabetically by state within each. On each subframe, strata containing an approximately equal number of facilities were then sequentially formed, with the number of such strata being set equal to the desired sample size for that subframe.

4. Selection of the Initial Facility Sample

One facility was selected at random from each stratum defined on the overall frame. For the 437 subframe, this approximated selection of a probability-proportional-to-grant amount sample of facilities.

5. Post-Stratification of Initial Facility Sample

Of the 155 facilities initially selected to support the Facility Component, 32 facilities were deemed to be ineligible (2 from the 437 file, and 30 from the non-437 file), primarily because the facility did not serve handicapped students in the 3-21 age range or the agency no longer existed. Eligible facilities were stratified by source (i.e., 437 versus non-437), and within the non-437 post-stratum into three further post-strata representing time of selection. As such, non-437 eligibles were post-stratified by time period (8, 63, 3 in time periods 1, 2, and 3, respectively). In time period 1, three further strata were formed: two of these corresponded to new states[5] (i.e., states not represented in the School Component sample), whereas the remaining stratum had six facilities from states already represented in the School Component sample. For the most part, time period 1 represented the start-up of field activities on the Facility Component. Similarly, time period 3 represented the clean-up of field activities, which included three eligible non-437 facilities as a single post-stratum. Finally, time period 2 bore the brunt of the subsampling of non-437 eligibles. In all, four further strata were formed for these latter groups based on residential/nonresidential status and listing of a specific handicapping conditions/not listing a specific handicapping condition for each eligible facility--Table A.25 contains the details.

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[5] Rational here was that expense of soliciting cooperation could only be justified if we were going to retain units in ultimate subsample.

Table A.25

POST-STRATIFICATION OF TIME PERIOD 2 ELIGIBLE NON-437 FACILITIES

	Residential, R	Nonresidential, $\bar{R}$	Total
Specific Handicap, H	7	18	25
Nonspecific Handicap, $\bar{H}$	10	28	38
Total	17	46	63

6. Allocation of Final Facility Sample

All eligible 437 initial sample members were to be selected with certainty into the final facility sample. Remaining sample facilities would be selected from non-437 eligibles, where, to allow for the possibility of further facility ineligibility, a total of 30 facilities would be sampled at three separate time points over the course of the data collection period. Table A.26 summarizes the final facility sample allocation.

Table A.26

ALLOCATION OF THE FINAL FACILITY SAMPLE TO POST-STRATA

Post-Stratum	Number of eligible initial sample members in post-stratum	Sample allocation	Subsample number
437	49	49	1
Time Period 1	8	4	-
SR1	1	1	2
SR2	1	1	3
Other	6	2	4
Time Period 2	63	25	-
R,H	7		5
$R,\bar{H}$	10		6
$\bar{R},\bar{H}$	28		7
$\bar{R},H$	18		8
Time Period 3	3	1	9
Total	123	79	

For the most part, sample allocations to time periods 1 and 3 were somewhat arbitrary. For time period 2, an attempt was made to realize a final facility sample having probabilities proportional to the estimated number of handicapped student enrolled. To achieve this, and in light of the fact that the sampling rate for CIC-only and OCR-only files was about one quarter that of the matched file, the size measure was defined to be

$$T_i = \begin{cases} 2H_i & \text{if } i^{th} \text{ facility on CIC-only or OCR-only files} \\ \frac{1}{2}H_i & \text{if } i^{th} \text{ facility on matched file} \end{cases} .$$

The time period 2 sample allocation was then distributed to post-strata in proportion to this contrived size measure. Equivalently, the time period 2 sample size was allocated to substrata in proportion to the weighted number of enrolled handicapped students.

7. Selection of the Final Facility Sample

The final facility sample is comprised of the subsample selected in each post-stratum of Table A.26. The first three subsamples identified in Table A.26 involves censusing all eligibles associated with their respective post-strata. Samples 4 and 9 were selected independently using simple random sampling without replacement in each case. Only in samples 5-8 was further control imposed on the selection of facilities. Specifically, facilities were ordered by the adjusted facility size measure; substrata were then sequentially formed having approximately equal total adjusted size measures and equal in number to the desired sample size for the post-stratum. One facility was then independently selected in each stratum (zone) using probabilities proportional to the adjusted size measure. Equivalently, the weighted number of enrolled handicapped students could have been used in lieu of the adjusted size measure.

8. Responding Status of Final Facility Sample

The responding status of the 79 facilities selected to support the Facility Component is summarized in Table A.27. For the most part then, double sampling proved highly successful in achieving the desired facility sample size, especially in light of the nature of the underlying frame.

B. Facility Student Sampling Procedures

At each facility in the sample, an attempt was made to select eight students in accordance with the same procedures used to identify the Basic

Table A.27

RESPONDING STATUS OF FACILITY COMPONENT SAMPLE FACILITIES BY SOURCE

Source	Number facilities selected	Responding Status		
		Responding	Nonresponding	Ineligible[a]
437	49	47	2	0(2)
Non-437	30	24[b]	2	4(30)
Total	79	71	4	4(32)

[a] Ineligible here is in reference to members in the final facility sample. Prior to this, 32 initial facility sample members were deemed to be ineligible (2 from the 437 file, and 30 from the non-437 file). The latter figures are noted in parentheses.

[b] Based on sample facilities thought to have at least one enrolled handicapped student having a current year IEP. Two facilities (classified here as ineligibles) completed questionnaires but do not develop IEPs for their handicapped students.

Survey student sample at each special school. No retrospective year subsample was selected, nor was any Level 2 data collection intended. In all, 556 students were selected to support the Facility Component. Ultimately, all sample students were found to be eligible but six members had to be viewed as nonrespondents. As in the school component, to be classified as a respondent the student must have both an IEP and completed Student Characteristics Questionnaire. One or both of these items were not available for these six students.

Attachment 1

Estimating Size of Handicapped Population by School Type

Attachment 1

Estimating Size of Handicapped Population by School Type

The IEP study was hampered from the outset by the virtual complete lack of district level information on the handicapped population. To serve our needs, the following information was available:

1. Number of handicapped students, by state, served under P.L. 94-142 (H_k)
2. Percent of school-aged population, by state, that are handicapped (p_k)
3. District enrollment in special education schools (S_i)
4. District enrollment (D_i)

(BEH Data Notes September 1977 for 1. & 2. and the CIC file for 3. & 4.)

To get estimates for district i in state k, we defined

$$D_i(R) = D_i - S_i$$

$$\hat{H}_k = \sum_{i \varepsilon k} (S_i + p_k D_i(R))$$

and finally,

$$p_k^* = \frac{H_k - \hat{H}_k}{\sum\limits_{i \varepsilon R} D_i(R)} + p_k \quad .$$

Then

$$\hat{h}_i = S_i + p_k^* D_i(R)$$

was used as the estimate of the number of handicapped students in the district. Moreover, the estimated number of handicapped students by school type in a given district was taken as S_i (for special school) and $\hat{h}_i - S_i$ (for regular schools), respectively. The rationale for adjusting the handicapped proportions (i.e., p_k to p_k^*) can be seen as follows:

$$\sum_{i\varepsilon k} \hat{h}_i = \sum_{i\varepsilon k} (S_i + p_k^* D_i(R))$$

$$= \sum_{i\varepsilon k} \left[S_i + \frac{H_k - \hat{H}_k + p_k}{\sum\limits_{i\varepsilon k} D_i(R)} \sum_{i\varepsilon k} D_i(R) \right]$$

$$= H_k - \hat{H}_k + \underbrace{\sum_{i\varepsilon k} \left[(S_i + p_k D_i(R) \right]}_{\hat{H}_k}$$

$$= H_k \ .$$

That is, state estimates à la BEH are preserved while assuming the special school enrollment is correctly specified in every instance.

NOTE: There are other logical ways for distributing H_k to districts--varying practices for administering special schools and for accepting enrollment make it almost impossible to define a "best" guestimate.

Appendix B

Computation of Sampling Weights, Adjustment for Nonresponse, and Standard Errors

Appendix B

Computation of Sampling Weights, Adjustment for Nonresponse, and Standard Errors

I. OVERVIEW

The analyses planned for the IEP Survey span four components:

1) School Component
2) Level 1 Longitudinal Component
3) Level 2 Longitudinal Component
4) Facility Component.

Appendix A earlier described both the consolidated 3-stage design supporting the first three components and the separate 2-stage design supporting the last component. In all, statistical inferences will be made to seven target populations. In addition, the multistage structure of the supporting design will require that three further target populations be addressed. Discussions will be distributed over six topic areas:

1) General form of study parameters/estimates.
2) Underlying target populations.
3) Computation of raw sampling weights.
4) Treatment of nonresponse.
5) Adjustments for large sampling weights.
6) Computation of approximate standard errors.

Throughout this appendix it will be assumed that the reader is familiar with the concepts underlying classical statistical inference.

II. GENERAL FORM OF PARAMETERS/ESTIMATES

A. General Form of Parameters

Analyses planned for the IEP Survey data will attempt to provide descriptive information as to the characteristics of various populations and/or information as to differences between subpopulations of interest. For the most part, population totals (means, proportions) and differences between population totals (means, proportions) for a given reporting category on a characteristic of interest will be the focus of our attention. To express these estimators in the case of a stratified multistage (multiphase) sample, it is notationally convenient to view the conceptual target population frame of N units in terms of H strata uniquely associated with actual first-stage units. Specifically, if a total for a characteristic Y is the population parameter of interest, then this parameter, ${}_gY_{++}$, takes on the form

$${}_gY_{++} = \sum_{h=1}^{H} \sum_{j=1}^{N_h} Y_{hj} \; {}_gX_{hj} \quad ,$$

where,

$$Y_{hj} = \begin{cases} \text{value of characteristic measured on unit hj (i.e., } j^{th} \\ \text{conceptual frame member in stratum h),} \end{cases}$$

$${}_gX_{hj} = \begin{cases} 1 & \text{if unit hj belongs to reporting group g} \\ 0 & \text{otherwise,} \end{cases}$$

N_h = number of frame members in stratum h (h = 1,2,··,H) .

Similarly, the associated population mean for characteristic Y in reporting group g, ${}_g\mu_Y$, can be represented as

$${}_g\mu_Y = \frac{{}_gY_{++}}{{}_gX_{++}} \quad ,$$

where

$${}_gX_{++} = \sum_{h=1}^{H} \sum_{j=1}^{N_h} {}_gX_{hj} \quad .$$

Comparisons of totals (means) between two reporting groups (g_1 and g_2, say) for the characteristic take on the form

$${}_{g_1}Y_{++} - {}_{g_2}Y_{++} \qquad (\text{or } {}_{g_1}\mu_Y - {}_{g_2}\mu_Y) \quad .$$

B. General Form of Estimates

In every analytic component, the entire population under consideration was not observed. Rather, a probability sample from the population of interest was selected. To account for this, sample estimates for population parameters of interest (i.e., totals, means, contrasts in same) will require responses recorded for each analysis unit to be weighted inversely to its probability of selection. Specifically, the general form of an estimator for a population total in reporting group g, can be written as

$$ {}_g\hat{Y}_{++} = \sum_{h=1}^{H} \sum_{j=1}^{n_h} \frac{Y_{hj}\,{}_gX_{hj}}{\pi_{hj}} = \sum_{h=1}^{H} \sum_{j=1}^{n_h} W_{hj}\, Y_{hj}\, {}_gX_{hj} \quad , $$

where

π_{hj} = probability that j^{th} unit in stratum h gets selected into the study,

W_{hj} = $[\pi_{hj}]^{-1}$,

n_h = number of observations selected from stratum h .

For convenience, W_{hj} will be referred to as the weight associated with the response obtained on unit hj. In the absence of errors attributable to measurement or frame construction, such an estimator is unbiased for ${}_gY_{++}$ (i.e., the expected value of ${}_g\hat{Y}_{++}$ over repeated samples is ${}_gY_{++}$). Similarly, the estimate for a reporting group mean would take on the form

$$ {}_g\hat{\mu}_Y = \frac{{}_g\hat{Y}_{++}}{{}_g\hat{X}_{++}} \quad , $$

where,

$$ {}_g\hat{X}_{++} = \sum_{h=1}^{H} \sum_{j=1}^{n_h} \frac{{}_gX_{hj}}{\pi_{hj}} \quad . $$

In general, this estimator is biased for the intended population parameter (since it is the ratio of two means). Specifically, the bias term, denoted by B(·), can be expressed as

$$B({}_g\hat{\mu}_Y) = E({}_g\hat{\mu}_Y) - {}_g\mu_Y = -\frac{1}{{}_gX_{++}} \operatorname{Cov}({}_g\hat{\mu}_Y, {}_g\hat{X}_{++}) \quad ,$$

so that

$$\frac{\left| B({}_g\hat{\mu}_Y) \right|}{\sigma({}_g\hat{\mu}_Y)} \leq \frac{\sigma({}_g\hat{X}_{++})}{{}_gX_{++}} = \text{c.v.}({}_g\hat{X}_{++}) \quad ,$$

where Cov(·,·), σ(·), and c.v.(·) are standard notation for covariance, standard deviation, and coefficient of variation respectively. For large samples then, the resulting bias will become negligible for most sample designs.

Similar expressions could be formalized for contrasts between means of two reporting groups.

C. Role of Stratification

Once the sample has been selected and the sampling weight determined, no further information is required concerning the sample design in general, and the delineation of strata in specific, for making point estimates of totals and means. The rationale for introducing the notion of first-stage strata at this time comes in the anticipation of the methodology that will be described for approximating the precision of these point estimates. As such, apart from the discussion included in Appendix A, the treatment of first-stage stratification will be deferred until Section VII. At that time, an attempt will be made to provide a clearer understanding of the role that stratification variables played in constructing data files.

III. UNDERLYING TARGET POPULATIONS

Statistical inferences will be made to seven target populations. In addition, the multistage structure of the supporting design introduces three further indirect populations--Table B.1 provides the details. Each target population will be formally defined in turn.

Table B.1

POPULATIONS OF INTEREST IN THE IEP SURVEY

Unit	Component	Instruments	Status	Population Number
Student	School	EC,SCQ,DRF4 (Current Year)	Direct	1
	Level 1 Longitudinal	(Current & previous Year)	Direct	2
	Level 2 Longitudinal	-	Direct	3
	Facility	EC,SCQ,DRF5	Direct	4
District	School Component	SDCQ,DRF1	Direct	5
	School Component	-	Indirect	6
School	School Component	SCHQ,DRF2	Direct	7
	School Component	-	Indirect	8
Facility	Facility Component	SFCQ,DRF3	Direct	9
	Facility Component	-	Indirect	10

A. School Component Student Target Population (Population 1)

All children in the 48 contiguous United States and the District of Columbia (except New Mexico which refused to participate before samples were drawn) who were, as of 1 December 1978:

1) Between ages 3-21.
2) Enrolled in a public elementary school administered by a local education agency.
3) Classified by their place of enrollment as handicapped.
4) Current year IEP for child held at place of enrollment.

Relative to the fourth condition, two points should be made:

1) Information was collected on the total number of children meeting the remaining conditions.
2) Some flexibility was allowed in the field to accomodate situations where all IEPs were held at a central office in the district. For the most part, however, the IEP document had to be readily accessible to the school staff.

B. Level 1 Longitudinal Student Target Population (Population 2)

All School Component student target population members who also had a previous year IEP at the place of enrollment.

Some flexibility was allowed in the field to allow for situations where the IEP for the previous year was held at another school in the district. Here again the key was whether the special education staff could/did have access to the previous year IEP.

C. Level 2 Longitudinal Student Target Population (Population 3)

Same as Population 2. In isolated cases, no Level 1 eligibles existed at a given school (at least within the School Component student sample) and, for evaluation purposes, population 1 members were substituted (well documented when used).

D. Facility Student Target Population (Population 4)

All children in the 48 contiguous United States and the District of Columbia (except New Mexico which refused to participate before samples were drawn) who were, as of 1 December 1978:

1) Between ages 3-21.
2) Enrolled in a facility on the facility frame (see Section III of Appendix A).
3) Classified by their place of enrollment as handicapped.
4) Current year IEP for child held at place of enrollment.

In many cases, the notion of an "IEP" was far less well-defined at facilities in comparison to schools and was given a liberal interpretation.

E. Direct School Component District Target Population (Population 5)

All Local Education Agencies in the geographic confines of the study that enroll at least one student who, as of 1 December 1978, was between the ages of 3 and 21 and classified as handicapped by the school of enrollment.

Notice that this population excludes districts not having any handicapped students enrolled as of 1 December 1978. Districts enrolling handicapped students remain eligible even if they do not complete an IEP on any of their students.

F. Indirect School Component District Target Population (Population 6)

All LEAs in the geographic confines of the study that enroll at least one population 1 member.

As such, population 6 is a proper subset of population 5, and provides an efficient first-stage conceptual frame for support of the overall School Component.

G. Direct School Component School Target Population (Population 7)

All schools administered by a district belonging to population 5 that enroll at least one child who, as of 1 December 1978, was:

1) Between ages 3-21.
2) Classified by the school as being handicapped.

H. Indirect School Component School Target Population (Population 8)

All schools administered by a district belonging to population 6 that enroll at least one population 1 member.

As such, population 8 is a proper subset of population 7, and provides an efficient second-stage frame for support of the School Component.

I. Direct Facility Component Facility Target Population (Population 9)

All facilities listed on the facility frame that enroll at least one child who, as of 1 December 1978, was aged 3-21 and classified by the facility as handicapped.

J. Indirect Facility Component Facility Target Population (Population 10)

All facilities listed on the facility frame that enroll at least one population 4 member.

As such, population 10 is a subset of population 9, and provides an efficient first-stage conceptual frame for support of the Facility Component.

IV. COMPUTATION OF RAW SAMPLING WEIGHTS

In theory, translation of the general form for population parameters/estimators requires the specification of four entities:

1) Target population.
2) Characteristic of interest.

3) Reporting groups of interest.

4) Sampling weight associated with each analysis unit.

The first concern, involving a statement of intended target populations, was addressed in the previous section. The second entity, related to defining characteristics of interest, was discussed at some length in Chapter 7 of the Final Report[1] on the design of the IEP Survey. Similarly, reporting groups, implicitly defined in the format of proposed analytic table shells (i.e., each cell of every table defines a reporting group), were discussed at that time. The remainder of Section IV will thus address the remaining issue, namely that of computing sampling weights for each analysis unit.

A. Weighting Procedures

In order to estimate the parameters discussed in Section II, data collected on a given analysis unit will be weighted by the reciprocal of the probability of selecting that unit into the supporting sample. After overviewing the general theory for computing inclusion probabilities in the multistage design supporting the IEP Study, this theory will be adapted to the probability sample supporting inferences to each individual target population listed in Table B.1.

1. Inclusion Probabilities for Multistage Designs

In general, the computation of inclusion probabilities for each member of a sample selected over multiple stages of a design proceeds in two steps:

a) Identification of all possible sequences of selections that would have resulted in unit i_k being selected at stage k, (say m_{i_k} in number).

b) Computation of the probability that none of the sequences are realized in a given application of the sampling methodology.

The inclusion probability for unit i_k is the complement of the probability in b (i.e., 1-b). In a strict multistage design, sample members enter the sample in a unique sequence (i.e., $m_{i_k} = 1 \quad \forall i_k$). For example, every student selected to support the IEP Survey is considered to be uniquely associated either with a given school (which itself is uniquely associated with a given district), or a given facility.

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[1] Pyecha, J. N., et al. Design of a National Survey of Individualized Education Programs (IEPs) for Handicapped Children. Research Triangle Park, N.C.: Research Triangle Institute, November 1978.

Inclusion probabilities in this case reduce to the product of the conditional probabilities for the associated units at each stage of sampling, and are expressed in general terms as

$$P\left\{\begin{array}{l} i_k \text{ selected} \\ \text{into sample} \end{array}\right\} = \prod_{j=1}^{k} \pi(i_j \mid i_1, i_2, \cdots, i_{j-1}) \quad ,$$

where

$(i_1, i_2, \cdots, i_k)$ = notation that i_k-th member on the final stage frame is uniquely associated with unit i_{k-1} at the (k-1)-st stage of sampling, which in turn is uniquely associated with unit i_{k-2} on the (k-2)-nd stage of sampling, etc.)

$\pi(i_j \mid i_1, i_2, \cdots, i_{j-1})$ = probability that unit i_j is selected into the sample given that units $i_1, i_2, \cdots, i_{j-1}$ were selected at the previous stages,

and

$$\pi(i_1 \mid i_0) = \pi(i_1) \quad .$$

2. Handling of Frame Multiplicities

School districts choose to serve their handicapped students in diverse ways. In doing so, some analysis units are associated with multiple higher stage sampling units (i.e., $m_{i_k} > 1$ for some i_k). Specifically

a) Schools (especially special schools) are not always entirely administered by a single school district.

b) Students can receive special education and/or related services from multiple schools crossing district lines.

c) Students may be listed on school frames more than once (e.g., a school may keep their records by handicapping condition so that any child having multiple handicaps is listed on the student frame at this school more than once).

In general, these situations are collectively referred to as frame multiplicities. In theory, one should compute true inclusion probabilities (i.e., accounting for any frame multiplicites associated with a given sample member). For student multiplicities on the student frame (i.e., (c.) above) this was accommodated by recording the frame numbers associated with each sample member (i.e., an attempt was first made to purge each student frame of duplicates, but after the main student sample was selected, the frame was again scrutinized in order to make the required determination for sample members). Given the sampling interval used in selecting the circular systematic sample of students the true inclusion probability was easily determined. In the second form of frame multiplicity (i.e., (b.) above) true inclusion probabilities are much more difficult to compute (since multiplicities may cross districts lines and no additional information is available on districts outside the sample). To accommodate this, the ability to produce unbiased estimates of population totals was preserved by merely determining the multiplicity of each analysis unit (i.e., m_{i_k}) and multiplying the realized sequence probability by this value.

Operationally, information was collected on all schools known to provide special education and/or related services to each sample student. In addition, a judgement was made as to whether each so-listed school would be expected to hold an IEP for that student. The current sampling weight was then divided by the number of these schools that were determined to be LEA-administered according to the CIC file. Finally, for the first form of multiplicity (i.e., (a.)), multiplicities were resolved by defining uniqueness consistent with the CIC file. Operationally sample districts were asked to revise the CIC school frame provided to them during initial contact to reflect any additional schools administered (at least in part) by the district. Any school so identified was later deleted if it was found to be associated with another public school district on the CIC file.

It should be noted that these multiplicities collectively occured in less than 3 percent of the possible cases and produced only minor deviations from the weight associated with the realized sequence.

3. Computing Conditional Probabilities at Each Stage of Sampling

The previous subsections outlined how inclusion probabilities for the IEP Study are expressible in terms of products of component conditional probabilities. These conditional probabilities account for sample size, stratification, usage of size measures, method of randomization, etc. within a given stage of sampling using methodology that is well known. Furthermore, only the student samples were selected in the field--districts, schools, and facilities were all selected on-site at RTI. More importantly, student sampling procedures were mechanized using standardized forms and individualized random number tables for each school or facility. As such, the student samples were deterministic given the order of the student frame and the Level 1 eligibility status of Basic Study sample members (facilitating the implementation of quality control procedures), and information required for the computation of conditional student weights was easily placed in computer readable format, hence minimizing transcription and interpretation errors, etc. Sample design specifications in Appendix A were intended to be sufficiently detailed so as to permit the reader to identify how standard statistical methodology should have been used to compute these raw sampling weights. No attempt will be made to spell out formulae for the component conditional weights.

V. ADJUSTMENTS FOR NONRESPONSE

A. Overview

Major efforts have and will be made to obtain a usable response for each unit selected into the sample. Indeed, various aspects of the sample design outlined in Appendix A (specifically, clustering, use of a consolidated design, use of subsampling, etc.) were imposed to minimize the need for such efforts. Despite these efforts, indeterminable uncertainties in data (i.e., nonresponse, inconsistencies) will inevitably remain. Specifically, total analysis unit nonresponse will exist in every analytic category (i.e., district-level, school-level, facility-level, and student-level), as will item nonresponse on the individual instruments used to record information on a given analysis unit. Nonresponse associated with this latter source includes that which is attributable to respondent refusal, neglect, or inability to complete one or more questionnaire items (even though they do complete some of the items), as well as inadmissible or inconsistent responses flagged during data editing. When efforts in obtaining data from nonrespondents (or subsamples of nonrespondents) have been exhausted, the remaining data indeterminancies must be handled analytically.

Having established the need for analytic treatment of data indeterminacies, it should be emphasized at the outset that there are no known unbiased or even consistent methods available for adjusting for nonresponse. Many surveys do, however, utilize imputation techniques and weight adjustment techniques in an attempt to reduce the effect of nonrespondent bias on study estimates. With this in mind, nonresponse for the IEP Study was handled in the following fashion:

1) Weighting class adjustments for complete analysis unit nonresponse.
2) Reporting of an indeterminate category for item nonresponse.

Such a position would appear to represent a reasonable compromise among alternatives, in light of the cost of making adjustments, the realized quality of study data, and the role intended for parameter estimates. Having said this, it remains only to indicate how weighting class methodology might be applied to data supporting the IEP Study. Before doing so, the underlying mechanism will be briefly overviewed.

B. Basic Notation Underlying Discussion of Nonresponse

Consider a target population of N units which, unbeknown to the analyst, consists of N_R members that would respond if selected into a probability sample, and $N_{\bar{R}}(= N-N_R)$ members that would not respond. If a population total for characteristic Y on reporting group g was of interest, our earlier notation could be re-written as

$$ {}_gY_{++} = \sum_{h=1}^{H} \sum_{i=1}^{N_h} Y_{hi}\ {}_gX_i $$

$$ = \sum_{h=1}^{H} \sum_{i=1}^{N_h} Y_{hi}\ {}_gX_i\ {}_RX_i + \sum_{h=1}^{H} \sum_{i=1}^{N_h} Y_{hi}\ {}_gX_i\ {}_{\bar{R}}X_i $$

$$ = {}_{gR}Y_{++} + {}_{g\bar{R}}Y_{++} \quad , $$

where

$$ {}_RX_i = \begin{cases} 1 & \text{,if member i would be a respondent} \\ 0 & \text{,otherwise} \end{cases} $$

$$ {}_{\bar{R}}X_i = \begin{cases} 1 & \text{,if member i would be a non-respondent} \\ 0 & \text{,otherwise .} \end{cases} $$

For notational simplicity, suppose that no stratification was used at the first-stage (i.e., $H = 1$) and that the entire frame is taken as the reporting group of interest (i.e., ${}_gX_i \; 1 \; \forall i$). Without loss of generality one can then express the above as

$$Y_+ = \sum_{i=1}^{N_R} Y_i + \sum_{j=1}^{N_{\bar{R}}} Y_j$$

$$= {}_RY_+ + {}_{\bar{R}}Y_+ .$$

Similarly

$$\mu_Y = \frac{{}_RY_+ + {}_{\bar{R}}Y_+}{N}$$

$$= \frac{N_R \, {}_R\mu_Y + N_{\bar{R}} \, {}_{\bar{R}}\mu_Y}{N_R + N_{\bar{R}}} .$$

A probability sample of n members would be selected, and n_R respondents realized (equivalently, $n_{\bar{R}}$ nonrespondents). The parameters of interest should be estimated by

$$\hat{Y} = \sum_{i=1}^{n_R} \frac{Y_i}{\pi_i} \left(+ \sum_{j=1}^{n_{\bar{R}}} \frac{Y_j}{\pi_j} \right)$$

or

$$\hat{\mu}_Y = \frac{\hat{N}_R \, {}_R\hat{\mu}_Y \left(+ \hat{N}_{\bar{R}} \, {}_{\bar{R}}\hat{\mu}_Y \right)}{N}$$

where

$$\hat{N}_R = \sum_{i=1}^{N} \frac{{}_RX_i}{\pi_i}$$

$$\hat{N}_{\bar{R}} = \sum_{i=1}^{N} \frac{{}_{\bar{R}}X_i}{\pi_i} .$$

Unfortunately, the measurement of the characteristic of interest is not available on nonrespondents. If nothing is done to adjust for this (i.e., nonrespondents merely ignored), estimates will be biased. Specifically, denoting such an estimator by a subscript 1,

$$B({}_1\hat{Y}) \;=\; E({}_R\hat{Y}_+) - Y \;=\; -\,{}_{\bar{R}}Y_+$$

and

$$B({}_1\hat{\mu}_Y) \;=\; E\left(\frac{\hat{N}_R\;{}_R\hat{\mu}_Y}{N}\right) \;-\; \mu$$

$$=\; \frac{N_R\;{}_R\mu_Y}{N} \;-\; \mu$$

$$=\; -\,\frac{N_{\bar{R}}\;{}_{\bar{R}}\mu_Y}{N} \quad .$$

Ignoring nonrespondents is mathematically equivalent to assuming that the characteristic of interest is zero for all nonrespondents. Such a tact is unacceptable to most (if not all) analysts who collectively prefer to at least attempt to make some form of adjustment. The simplest and most naive adjustment is to assume that nonrespondents are "similar" to respondents and to assign the respondent mean as the missing nonrespondent value in each case (i.e., overall mean adjustment). Proceeding in this fashion, and identifying such an estimater by a subscript 2, causes

$$B({}_2\hat{Y}) \;=\; E({}_R\hat{Y}_+ + \hat{N}_{\bar{R}}\;{}_R\hat{\mu}_Y) \;-\; Y$$

$$=\; N\,E\left(\frac{{}_R\hat{Y}_+}{\hat{N}_R}\right) \;-\; Y$$

$$\doteq\; N_{\bar{R}}\,({}_R\mu_Y - {}_{\bar{R}}\mu_Y) \quad .$$

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Similarly

$$B({}_2\hat{\mu}_Y) = E\left(\frac{{}_2\hat{Y}_+}{N}\right) - \mu$$

$$\doteq \frac{N_{\bar{R}}}{N}\,({}_R\mu_Y - {}_{\bar{R}}\mu_Y) .$$

That is, the bias is a function of the size of the nonresponding stratum and the difference between the means of responding and nonresponding individuals. Hence, if there are no nonrespondents, or these latter means are equal, there will be no bias.

Improvements in substituting the overall mean of respondents for the missing data can be achieved in several ways. Weighting class adjustments, the method decided upon for the IEP survey, is discussed in the next section.

C. Weighting Class Adjustments

1. General Discussion

The weighting class adjustment procedure assigns sample members to weighting classes based upon information available for both respondents and nonrespondents. Within these weighting classes, an individual is assigned an adjusted sampling weight, W^*. Specifically, for the ℓ^{th} weighting class, $(\ell = 1,2,...L)$,

$$W_i^* = \begin{cases} W_i \dfrac{WS(\ell)}{WR(\ell)} & , \text{ if i-th individual is a respondent in weighting class } \ell, \\ 0 & , \text{ if i-th individual is a nonrespondent in weighting class } \ell, \end{cases}$$

where,

$WS(\ell)$ = Sum of sampling weights for all analysis units in weighting class ℓ,

$WR(\ell)$ = Sum of sampling weights for all responding analysis units in weighting class ℓ .

Sample estimates are then obtained using these nonresponse adjusted weights. Specifically, for a population total, this third form of adjustment could be written as

$$
\begin{aligned}
{}_3\hat{Y}_+ &= \sum_{i=1}^{n} W_i^* Y_i \\
&= \sum_{\ell=1}^{L} \frac{\hat{N}(\ell)}{\hat{N}_R(\ell)} \, {}_R\hat{Y}_{\ell+}
\end{aligned}
$$

where

$$\hat{N}_R(\ell) = \sum_{i=1}^{n} W_i \, {}_R X_i \, {}_\ell X_i$$

$${}_\ell X_i = \begin{cases} 1 & \text{if unit i belongs to weighting class i} \\ 0 & \text{otherwise} \end{cases}$$

$$\hat{N}(\ell) = \sum_{i=1}^{n} W_i \, {}_\ell X_i \quad ,$$

and the weighting classes are allowed to play the role of strata in the earlier notation. As such, the overall adjustment scheme is merely applied separately in each weighting class. Notice that

$$
\begin{aligned}
B({}_3\hat{Y}_+) &= E({}_3\hat{Y}_+) - Y_+ \\
&\doteq \sum_{\ell=1}^{L} \frac{N(\ell)}{N_R(\ell)} \, {}_R Y_{\ell+} - \sum_{\ell=1}^{L} Y_{\ell+} \\
&= \sum_{\ell=1}^{L} N_{\bar{R}}(\ell) \, [{}_R\mu_Y(\ell) - {}_{\bar{R}}\mu_Y(\ell)] \quad .
\end{aligned}
$$

Inspection of this bias term (a similar expression holds for means under the weighting class adjustment) suggests that weighting classes should be formed to maximize the within class homogeneity of responses. In addition, simplistic modelling attempts mandate that the weighting classes exhibit differential response rates. Furthermore empirical evidence suggests that a minimum of 20 respondents be used in each weighting cell and that to avoid imposing/aggravating the effects of unequal analysis unit weighting, the weight adjustment factor should not exceed 2. To achieve these conditions, smaller weighting cells should be combined by collapsing the variables defining the set of weighting classes.

Finally, it should be emphasized that the characteristics used to define weighting classes must be available for both respondents and nonrespondents.

D. Implementing Weighting Class Adjustments

Weighting class adjustments were made in the probability sample selected from each population identified in Table B.1. Each application of the methodology will be discussed in turn.

1. Nonresponse Adjustments for School Component

Nonresponse was experienced at the district, school, and student levels of this component (see Appendix A, Tables A.17, A.20, A.21). As such, separate weighting class adjustments were made at each stage in order that information was available for both respondents and nonrespondents (a prerequisite for forming weighting classes). Furthermore, additional care was taken to ensure that the weight adjustment factor for each cell at a given level was as small as possible, since the weight adjustment factor is multiplicative over the stages of the design. The adjustment at each stage will be discussed in turn.

a. Adjustment for District Nonresponse

The realized district sample experienced 22 nonrespondents (see Appendix A, Table A.17). Weighting classes were formed using CIC district enrollment and census region so that weighting classes within a given region had equal total enrollments. The number of weighting classes within a given census region was heuristically assigned--Table B.2 contains further details. For the purposes of the School Component, raw sampling weights were adjusted at the district level using the population-based weighting class factor (i.e., term in parentheses in last column of Table B.2). Such an approach has the potential both of minimizing the bias and improving precision of the resulting parameter estimates.

Table B.2

WEIGHT ADJUSTMENT FACTOR FOR DISTRICT NONRESPONSE

Weighting Class Number	Census Region	Enrollment Category	Number of Districts: Responding	Number of Districts: Nonresponding	Weight Sum[a/]: Responding	Weight Sum[a/]: Nonresponding	Nonresponse[b/] Adjustment Factor
1	1	1	26	5	1695.3	437.8	1.26
					(2222)		(1.31)
2	1	2	21	0	280.2	0	1.00
					(312)		(1.11)
3	2	1	21	4	3367.1	864.2	1.26
					(4539)		(1.35)
4	2	2	22	3	761.1	126.6	1.17
					(866)		(1.14)
5	2	3	16	0	166	0	1.00
					(155)		(.93)
6	3	1	29	1	3526.9	34.6	1.01
					(3043)		(.86)
7	3	2	19	3	320	39.6	1.12
					(395)		(1.23)
8	3	3	20	2	82.7	4.9	1.06
					(70)		(.85)
9	4	1	21	2	3532.4	87.8	1.02
					(2596)		(.73)
10	4	2	13	2	107.2	20.8	1.19
					(127)		(1.85)
			208	22	13,838.9	1,616.3	
					(14,325)		

[a/] Figure in bracket represents the actual number of districts contained on the CIC district frame in this weighting class.

[b/] Figure in bracket represents the NR adjusted factor when the true parameter value is used in the numerator of the weighting class adjustment factor formula. (Instead of the estimate based on the realized sample.)

b. Adjustment for School Nonresponse

The realized school sample experienced 9 nonrespondents (see Appendix A, Table A.20). Weighting classes were formed by school type--Table B.3 contains the necessary details.

c. Adjustment for Student Nonresponse

The realized student sample realized 30 nonrespondents (see Appendix A, Table A.21). Weighting classes were formed by school type--Table B.4 provides the details.

d. Summary of School Component Nonresponse Adjustment

For sample student k in school j of district i ,

$$\pi_{ijk} = \pi_i \pi_{j \cdot i} \pi_{k \cdot ij} .$$

If $A_\ell(i,j,k)$ is the nonresponse adjustment at stage ℓ for this student, the overall adjusted weight, π^*_{ijk}, can be expressed as

$$\pi^*_{ijk} = \pi_i \pi_{j \cdot i} \pi_{k \cdot ij} \; A_1(i,j,k) \, A_2(i,j,k) \, A_3(i,j,k) .$$

Knowing the census region and district enrollment, $A_1(i,j,k)$ is specified by Table B.2. Similarly, school type allows $A_2(i,j,k)$ and $A_3(i,j,k)$ to be specified according to Tables B.3 and B.4 respectively. Clearly, the maximum overall nonresponse adjusted factor is less than 2 which is generally to be preferred in most applications.

2. Nonresponse Adjustment for Level 1 Longitudinal Component

The Level 1 Longitudinal Component was supported by a subsample of the School Component student sample. As such, adjustment of raw Level 1 student weights for subsampling nonresponse were carried out using the adjusted student weights of the previous section.[2] Specifically, respondent School Component sample students in the Level 1 subsample were poststratified by school type in forming weighting classes--Table B.5 contains the details.

3. Nonresponse Adjustment for Level 2 Longitudinal Component

The Level 2 Longitudinal Component is supported by a subsample of the Level 1 student sample. Apart from nonresponse experienced in this latter sample,

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[2] In actual fact, School Component student weights were also corrected for unequal weighting (see Section B.VI).

Table B.3

WEIGHT ADJUSTMENT FACTOR FOR SCHOOL NONRESPONSE

School Type	Weighting Class	Number of Schools		Sum of Weights		Nonresponse Adjusted Factor
		Responding	Nonresponding	Responding	Nonresponding	
Regular	1	437	5	68,848.5	656.5	1.00954
Special	2	70	4	1,124.2	64.1	1.05702
		507	9			

Table B.4

WEIGHT ADJUSTMENT FACTOR FOR STUDENT NONRESPONSE

School Type	Weighting Class	Number of Students		Sum of Weights		Nonresponse Adjusted Factor
		Responding	Nonresponding	Responding	Nonresponding	
Regular	1	2125	25	2,679,670	40,010	1.01493
Special	2	532	5	112,211	585	1.0052
		2657	30			

Table B.5

WEIGHT ADJUSTMENT FACTOR FOR LEVEL 1 STUDENT SUBSAMPLING NONRESPONSE

School Type	Weighting Class	Number of Students[a]		Sum of Weights		Nonresponse Adjusted Factor
		Responding	Nonresponding	Responding	Nonresponding	
Regular	1	675	18	1,469,130	38,607	1.0263
Special	2	121	3	80,148	689	1.0086
		796	21			

[a] See Table A.22.

no further subsampling nonresponse occurred. As such, Level 2 data could be analyzed using the adjusted Level 1 weights corrected for subsampling (i.e., inflated by the conditional weight associated with subsampling of districts).

4. Nonresponse Adjustment for District Questionnaires

The respondent status of both the direct and indirect district samples were identical (see Appendix A, Table A.17). As such, the adjusted first-stage sampling weights for the School Component will be used in analyzing data recorded on District Questionnaire for responding districts.

5. Nonresponse Adjustment for School Questionnaires

The direct school sample experienced one additional respondent over the indirect school sample (which was used to support the student School Component sample)--Table A.20 in Appendix A contained the details. Weighting classes were again formed by school type (see discussions on adjusting for school nonresponse at second stage of School Component student sample)--Table B.6 provides the details.

6. Nonresponse Adjustment for Facility Component

Nonresponse was experienced at the facility and student levels of this component (see Tables A.27 in Appendix A, and subsequent discussions concerning selection of Facility students). As such, separate weighting class adjustments were made at each stage, and will be discussed in turn.

a. Adjustment for Facility Nonresponse

The realized facility sample experienced 4 nonrespondents (see Appendix A, Table A.27). Weighting classes were formed by source--Table B.7 provides the details.

b. Adjustment for Student Nonresponse

The realized sample of students associated with facilities experienced 6 nonrespondents, for which a single overall adjustment was made--Table B.8 contains the details.

7. Nonresponse Adjustment for Facility Questionnaires

Facility questionnaires were received from 73 of 77 eligible sample facilities (student samples were not selected at 2 of these facilities in that IEPs were not available for the associated handicapped children). As in the first stage of the Facility Component, weighting classes were formed by source--Table B.9 provides the details.

Table B.6

WEIGHT ADJUSTMENT FACTOR FOR SCHOOL QUESTIONNAIRE NONRESPONSE

School Type	Weighting Class	Number of Schools		Sum of Weights		Nonresponse Adjusted Factor
		Responding	Nonresponding	Responding	Nonresponding	
Regular	1	438	5	69,369.0	656.5	1.00946
Special	2	70	4	1,124.2	64.1	1.05702
		508	9			

Table B.7

WEIGHT ADJUSTMENT FACTOR FOR FACILITY NONRESPONSE

School Type	Weighting Class	Number of Facilities		Sum of Weights		Nonresponse Adjusted Factor
		Responding	Nonresponding	Responding	Nonresponding	
437	1	47	2	751	6	1.00799
Non-437	2	24	2	2,279	159	1.06977

Table B.8

WEIGHT ADJUSTMENT FACTOR FOR STUDENT NONRESPONSE AT FACILITIES

School Type	Weighting Class	Number of Students		Sum of Weights		Nonresponse Adjusted Factor
		Responding	Nonresponding	Responding	Nonresponding	
437, Non-437	1	550	6	185,309.2	898.5458	1.00485

Table B.9

WEIGHT ADJUSTMENT FACTOR FOR FACILITY QUESTIONNAIRE NONRESPONSE

School Type	Weighting Class	Number of Facilities		Sum of Weights		Nonresponse Adjusted Factor
		Responding	Nonresponding	Responding	Nonresponding	
437	1	47	2	751	6	1.00799
Non-437	2	26	2	2,508	159	1.06340

VI. ADJUSTMENTS FOR LARGE SAMPLE WEIGHTS

A. Overview

The advantages of an equiprobable sample are well known. For the most part, the sample design supporting the IEP Survey was intended to produce such a self-weighting structure for all student samples (i.e., School Component, Level 1 Longitudinal Component, Level 2 Longitudinal Component, and Facility Component). District, school and facility samples were intended to be proportional-to-size (here, essentially the number of enrolled handicapped students), a tact particularly advantageous for the estimation of parameters of the form "proportion of handicapped students served in administrative units of a given type". As such, these latter samples were intended to deviate from an equiprobable model. In the former cases, however, some degree of unequal weighting was experienced in every component during implementation of the proposed design. After outlining sources of unequal weighting for each of these components, a simplistic model will be presented to account for the impact that unequal weighting might have on the precision of study estimates. The strategy employed in analyzing the IEP Survey data to moderate the impact of the realized unequal weighting in samples will then be outlined. Finally, this general strategy, will be applied, in turn, to each of the student samples making up the IEP Survey.

B. Sources of Unequal Weighting

1. School Component Student Sample

The School Component student sample was intended to be self-weighting by school type. Deviations among weights exist, however, from one or more of the following sources:

a) Lack of profile for target population at district level necessitated use of an extremely crude estimated district size measure based on state-level data published by BEH that was almost two years out of date.

b) To better preserve the integrity of the School Component district sample size, "small" districts were over-represented. For the most part, first stage sampling weights for such sample members were "large" and particularly vulnerable to errors in estimating the underlying size measure.

c) Respondent burden at district level could not justify the collection of data on the actual number of handicapped students enrolled at a given school in a sample district. Rather, school-level profiles had to be estimated using district-level revised aggregates of the total number of handicapped students enrolled by school type.

d) Lateness in receiving OMB clearance for the study required that sampling activities be carried out on a flow basis and precluded dynamic allocation of the student sample to a given school. Rather, a fixed student sample size, by school type, was adopted for the study.

e) Nonresponse at the district level far-exceeded the anticipated level and necessitated weighting class adjustments that, by nature, induce unequal weighting into the respondent sample. For the most part, bias reduction is the aim of these adjustments, and not the preservation of a self-weighting structure (which is aimed primarly at minimizing the variance).

f) School districts choose to serve their handicapped students in diverse ways. As such, enrollment-based size measures can be misleading in some cases, a situation worsened by the decision not to re-allocate the student sample to schools based on the true third-stage frame size.

2. Level 1 Longitudinal Component Student Sample

The Level 1 Longitudinal Component was originally intended to be supported by an equiprobability subsample of the School Component student sample. As such, self-weighting was to have been an inherited property. Deviation among weights, beyond what was experienced in the School Component student sample, do however exist from one or more of the following sources:

a) To better guarantee the integrity of the Level 1 student sample, School Component sample students at each school were post-stratified by eligibility for the Level 1 component (i.e., presence of retrospective year IEP at school) and the subsample selected only from among eligibles. As such, the conditional subsampling probability is a function of the proportion of elgibiles realized in the School Component student sample, which varies by school.

b) P.L. 94-142 is a relatively "new" law and as such, will require time to implement. In some cases, two Level 1 eligibles were not realized in the School Component student sample (and hence, Level 1 sample size could not be achieved at these schools). This was particularly true of single grade schools, etc.

3. Level 2 Longitudinal Component Student Sample

The Level 2 Longitudinal Component was originally intended to be an equiprobability subsample of the Level 1 Component sample students. Specifically, an equiprobability subsample of School Component sample districts was to be selected and the Level 1 sample student first selected at each sample school in the Level 2 district subsample taken into the Level 2 student sample with certainty. Only minor deviations among weights, beyond what was experienced in the Level 1 Longitudinal Component student sample, were experienced in this component. For the most part, these were primarily due to rounding in the district subsample allocation to achieve the desired composition of districts in the in-depth Level 2 Component.

4. Facility Component Student Sample

The Facility Component student sample was intended to be self-weighting. Deviations among weights exist, however, from one or more of the following sources:

a) Delays in constructing an acceptable facility frame precluded dynamic allocation of the student sample. Instead, an attempt was made to select a fixed number of students at every eligible sample facility.

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b) To have realized an equal probability sample under (a), facilities would have had to have been selected in proportion to the number of associated handicapped children. Unfortunately, this information was not available for the majority of members on the facility frame. For the most part, however, 437 facilities were selected in a related fashion (specifically, approximately in proportion to the size of grant).

c) Past experience suggested that any facility frame would be grossly inefficient (i.e, contain large numbers of ineligible facilities). In keeping with the exploratory nature of this component, every effort was made to allocate and select the first-stage sample so as to hopefully maximize the number of eligible sample members using our a priori assessment of the frame efficiency in broad strata. For the most part, such a strategy represents a divergent path from that of having self-weighting as the ultimate goal.

d) Within the initial non-437 facility sample, efforts were made (i.e., proportional allocations to post-strata based on the weighted number of enrolled handicapped students) to achieve a proportional-to-size sample for this subpopulation. As such, some approximation to self-weighting was attempted by source (i.e., 437 versus non-437). Unfortunately, selection probabilities for the initial facility sample were sometimes so dissimilar relative to proportionality that the post-stratification prior to the final selection of facilities could provide for only partial compensation.

C. Modeling the Possible Impact of Unequal Weighting

The IEP Study is supported by a stratified multistage sample design. In general, the precision of study estimates will be a function of variability both within and between each stage of sampling. Optimal applications of such designs occur when the majority of variability with respect to study characteristics exists at the final stage of sampling. With this occurs, next to last stage sample units are treated as strata in the computation of variability attributable to the last stage of sampling. Furthermore, in almost all of the study components, an equiprobable sample of final stage units is selected within each such conditional stratum. As such, the effect of unequal weighting should be satisfactorily modeled by a stratified random sample where perfect size measures will be assumed.

Notationally, suppose n_{+j} final stage units are selected at random with replacement from the N_{+j} units in stratum j ($j = 1,2,\cdots,k$). If stratum j has mean μ_j and variance σ_j^2 on a characteristic of interest, Y, the overall mean of interest is

$$\mu = \frac{\sum_{j=1}^{k} N_{+j}\,\mu_j}{N_{++}} ,$$

for which

$$\bar{y} = \frac{\sum_{j=1}^{k} \frac{N_{+j}}{n_{+j}} \sum_{i=1}^{n_{+j}} y_{ij}}{N_{++}}$$

$$= \sum_{j=1}^{k} \left(\frac{N_{+j}}{N_{++}}\right) \bar{y}_j$$

is an unbiased estimator.

Moreover

$$\mathrm{Var}(\bar{y}) = \sum_{j=1}^{k} \left(\frac{N_{+j}}{N_{++}}\right)^2 \frac{\sigma_j^2}{n_{+j}} .$$

If domains are equally variable (i.e., $\sigma_j^2 = \sigma^2$ for all j), then

$$\mathrm{Var}(\bar{y}) = \frac{\sigma^2}{n_{++}} \sum_{j=1}^{k} \frac{\left(\frac{N_{+j}}{N_{++}}\right)^2}{\left(\frac{n_{+j}}{n_{++}}\right)}$$

$$= \frac{\sigma^2}{n_{++}} \sum_{j=1}^{k} \frac{\pi_j^2}{\theta_j} ,$$

where π_j and θ_j are the population proportion and sample proportions of stratum j members, respectively. This variance is minimized for

$$\pi_j = \theta_j \quad \text{(i.e., self-weighting)}$$

in which case

$$\mathrm{Var}(\bar{y}) = \frac{\sigma^2}{n_{++}} ,$$

which is the variance of the usual sample mean under simple random sampling of n_{++} units from an unstratified frame. Disportional allocation of sample sizes to strata then results in

$$\mathrm{Var}(\bar{y}) = \frac{\sigma^2}{n_{++}} D ,$$

where

$$D = \sum_{j=1}^{k} \frac{\pi_j^2}{\theta_j}$$

is the design effect (i.e., premium paid) for unequal weighting. This design effect can be rewritten as

$$D = \frac{n_{++}}{\left(\sum_{j=1}^{k} \sum_{i=1}^{n_{+j}} W_j \right)^2} \sum_{j=1}^{k} \sum_{i=1}^{n_{+j}} W_j^2 = \frac{n_{++}}{N_{++}^2} \sum_{j=1}^{k} \sum_{i=1}^{n_{+j}} W_j^2 ,$$

where

$$\left. \begin{aligned} W_j &= \frac{N_{+j}}{n_{+j}} \\ &= \text{common sampling weight for} \\ &\quad \text{sample members from stratum } j \end{aligned} \right\} \quad j = 1,2,\cdots,k.$$

Note that the variance is directly proportional to the sum of the squared weights of sample members. The design effect is minimized when

$$\frac{N_{+j}}{N_{++}} = \frac{n_{+j}}{n_{++}} .$$

That is,

$$n_{+j} = n_{++} \frac{N_{+j}}{N_{++}}$$

(i.e., a proportional allocation of the overall sample size). When this is done, every unit contributes an equal amount, $I_{ij} = [n_{++}]^{-1}$, to the overall variance, where

$$I_{ij} = \frac{W_j^2}{\sum\limits_{j=1}^{k}\sum\limits_{i=1}^{n_{+j}} W_j^2}$$

$$= \frac{\left(\frac{N_{++}}{n_{++}}\right)^2}{\sum\limits_{j=1}^{k}\sum\limits_{i=1}^{n_{+j}}\left(\frac{N_{++}}{n_{++}}\right)^2}$$ (Under a proportional allocation of the oversample size) .

Observations having a large weight associated with them (or equivalently, where I_{ij} is "large") have a disportionately large effect on the variance of the estimated parameter. This conclusion assumes that the strata variances are equal. When this assumption is not warranted, precision is maximized by

$$n_{+j} = n_{++} \frac{N_{+j}\sigma_j}{\sum\limits_{j=1}^{k} N_{+j}\sigma_j} .$$

Note that under such an allocation, the sampling rate in each stratum is directly proportional to the stratum standard deviation,

i.e., $\frac{n_{+j}}{N_{+j}} \propto \sigma_j$.

That is, the sampling rate increases (sampling weight decreases) in direct proportion to the stratum standard deviation. Differential magnitudes in sampling weights should thus optimally reflect variability between strata variances. In particular, in light of the dominance of large weights in determining the variance of the estimated mean under the assumption of homoscedastic strata, strong evidence should exist that large weights are associated with strata in which individuals exhibit little variability with respect to this characteristic. In the absence of information to the contrary, the analyst is forced to assume that all strata are equally variable and that large weights reflect some uncontrollable event that caused a marked deviation from self-weighting. As such, some sort of adjustment might be considered which attempts to counteract the overwhelming impact on variance that large weights are known to have, while retaining the integrity of the parameter estimate under consideration. Strategies for accomplishing this are the subject of the next section.

D. Analytic Treatment of Large Sampling Weights

Weighting analysis units by the inverse of its associated inclusion probability is known to produce unbiased estimates of population totals. Unfortunately, when large weights are present, insistence on unbiasedness in estimates of totals may exact a price in terms the variance of such estimates being inordinately large. Clearly, disportionately large weights are associated with some analysis units in the IEP Study. In these instances, this problem was addressed by smoothing the sampling weights so that no weight exceeded a certain magnitude and the sum of weights was preserved under the smoothing process. To operationalize such a scheme, the frequency distribution of squared weights associated with analysis units for a given target population was computed within school type for the three School Component student samples. Within a given distribution, weights larger than a chosen value were set to this value and the weight sum preserved by smoothing the excess proportionally over the nontruncated weights. In general, the truncation point was chosen as some high percentile (e.g., 95, 99) of the distribution of squared weights. Equivalently, one could have choosen the truncation point as some multiple of the variance contribution associated with a self-weighting design (i.e., $I_{ij} > c[n_{++}]^{-1}$). Subjectively, values of c in excess of 10 are rare but the final choice would ultimately depend on the dispersion exhibited in the squared weight distribution. The requirement to account for the truncated portion of raw weights is associated with the stated need to estimate population totals. Specifically, the sum of sampling weights provides an unbiased estimate of the number of target population members associated with a given distribution and the integrity of this property is preserved under the proposed smoothing operator. The next section documents the application of this methodology to each of the student samples in turn.

E. Application of Weight Turncation and Smoothing Methodology to Student Samples

Weight truncation and smoothing was applied to the School Component student sample (by school type) and independently to the Facility Component student sample. In addition, the unequal weighting design effect was computed for the two remaining longitudinal student samples. Each application will be discussed in turn.

1. School Component Student Sample

Weight truncation and smoothing were carried out, by school type, for this component. Each will be addressed in turn.

a. Regular School Component

The Regular School Component was ultimately supported by n = 2125 responding students. At the outset, the empirical distribution of adjusted squared weights was computed and summarized in Table B.10. Notationally

$$n_c = \left\{ \text{number of weights for which } \frac{w_i^2}{\sum_{i=1}^{n} w_i^2} \geq \frac{c}{n} \right.$$

and

$$D_c = n_c \frac{\sum_{i=1}^{n-n_c} w_{(i)}^2}{\left(\sum_{i=1}^{n-n_c} w_{(i)}\right)^2} \quad , w_{(1)} \leq w_{(2)} \leq \cdots \leq w_{(n)}$$

= design effect that is realized by censoring the n_c largest observations from the distribution.

The decision was made to truncate the squared weight distribution at the 99.58 percentile (equivalently, at $C_{max} = 10$). Specifically

$$\frac{w_{max}^2}{\sum w_i^2} = \frac{C_{max}}{n}$$

$$\Rightarrow w_{max} \doteq 5130$$

(Note: The average weight was about 1275).

Table B.10

EMPIRICAL DISTRIBUTION OF ADJUSTED SQUARED WEIGHTS FOR REGULAR SCHOOL COMPONENT STUDENT SAMPLE

c	n_c	Upper Percentile of $\{w_i^2\}$[a]	D_c
0.0	2125	0	-
0.2	1408	33.74	1.1967
1.0	587	72.38	1.26417
2.0	259	87.81	1.3303
4.0	120	94.35	1.4149
6.0	55	97.41	1.48314
8.2	30	98.59	1.5282
8.4	15	99.29	1.5581
8.6	10	99.53	1.5676
10.2	10	99.53	1.5676
10.3	5	99.76	1.5809
19.2	5	99.76	1.5809
19.3	0	100.00	1.6165

[a] Upper percentile of distribution of squared weights, $\{w_i^2\} = 100 - \frac{n_c}{n}$

= percentage of squared weights no larger than $\frac{c \sum_{i=1}^{n} w_i^2}{n}$.

From Table B.10, 10 observations were set to this truncated value.[3] That is,

$$w_i^* = \begin{cases} w_i & \text{if } w_i \leq 5130 \\ 5130 & \text{if } w_i > 5130 \end{cases}$$

To preserve the sum of original weights, nontruncated weights were proportionally inflated. Specifically, the sampling weight adjusted for both nonresponse and unequal weighting, w^{**}, was taken as

$$w_i^{**} = \begin{cases} 1.00386 \; w_i & , \quad w_i = w_i^* \\ 5130 & , \quad \text{otherwise.} \end{cases}$$

b. Special School Component

The Special School Component was ultimately supported by 532 responding students. As in the case of the Regular School Component, the first step taken was the computation of the distribution of adjusted squared weights--Table B.11 provides the details.

Table B.11

EMPIRICAL DISTRIBUTION OF ADJUSTED SQUARED WEIGHTS
FOR SPECIAL SCHOOL COMPONENT STUDENT SAMPLE

c	n_c	Upper Percentile of $\{w_i^2\}$	D_c
0.0	532	0	-
0.2	337	36.65	1.1815
1.0	144	72.93	1.2576
2.0	88	83.46	1.3085
3.0	40	92.48	1.4267
3.8	16	96.99	1.4859
4.0	8	98.50	1.5014
15.6	8	98.50	1.5014
15.8	0	100.00	1.6962

---

[3] These 10 students were associated with 2 sample schools (5 at each) where district-level information grossly underestimated the number of enrolled handicapped students at the realized sample schools.

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The decision was made to truncate the squared weight distribution at the 98.50 percentile (equivalently, at $C_{max} = 4$). Specifically

$$\frac{w_{max}^2}{\Sigma w_i^2} = \frac{C_{max}}{532}$$

$$\Rightarrow \quad w_{max} \doteq 550$$

(Note: The average weight was about 211).

From Table B.11, 8 observations were set to this truncated value.[4] That is,

$$w_i^* = \begin{cases} w_i , & \text{if} \quad w_i \leq 550 \\ 550 , & \text{if} \quad w_i > 550 . \end{cases}$$

To preserve the sum of original weights, weights were linearly adjusted.

Specifically, the sampling weight adjusted for both nonresponse and unequal weighting, w^{**}, was taken as

$$w_i^{**} = \begin{cases} 1.04151 \, w_i , & w_i = w_i^* \\ 550 , & \text{otherwise.} \end{cases}$$

c. Comments on Ultimate School Component Student Weights

Sample design efforts for the School Component of the IEP Survey were plagued from the beginning by the lack of a detailed profile of the handicapped population at the district level. Despite this, design effects associated with unequal weighting were held below 1.6 for the School Component, a very acceptable level for a national survey. Undoubtedly, had time and money allowed, dynamic allocation of the ultimate student sample based on student frame counts would have dramatically improved the situation. Indeed, should a future survey of a similar nature be carried out, updating of the size measure and reallocation of the associated sample size at each stage of sampling should allow a design effect of 1.2 or better to be realized.

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[4] These students were all associated with a single facility which enrolled far more students than were reported during state contacts.

2. Level 1 Longitudinal Student Sample

The Level 1 Longitudinal Component was ultimately supported by 796 responding students (675 regular, 121 special). The effect of unequal weighting, by school type, is summarized in Tables B.12 and B.13 respectively. The Level 1 adjusted weights made use of the School Component student weights that had been adjusted for nonresponse and unequal weighting. With this in mind, a decision was made not to further adjust these weights prior to analysis.

3. Level 2 Longitudinal Student Sample

The Level 2 Longitudinal Component was ultimately supported by 50 responding students (42 at regular schools and 8 at special schools). The effect of unequal weighting, by school type, is summarized in Tables B.14 and B.15, respectively. The Level 2 adjusted weights made use of the Level 1 Longitudinal Component student weights (and hence the School Component student weights). As such, some unequal weighting adjustment has already been made to the student weights for this component. In addition, analysis of Level 2 data will primarily be descriptive and based solely on raw data (i.e., sampling weights set to 1). With this in mind, a decision was made not to further adjust these weights prior to analysis.

4. Facility Component Student Sample

The Facility Component was ultimately supported by 550 responding students. At the outset, the empirical distribution of adjusted squared weights was computed and summarized in Table B.16.

The decision was made to truncate the squared weight distribution at the 98.55 percentile (or equivalently, at $C_{max} = 6$). Specifically,

$$\frac{w_{max}^2}{\Sigma w_i^2} = \frac{C_{max}}{550}$$

$$\Rightarrow w_{max} \doteq 1374 \quad .$$

(Note: The average weight was about 339).

From Table B.16, 8 students were set to this truncated value.[5] That is,

$$w_i^* = \begin{cases} w_i \ , & \text{if } w_i \leq 1374 \\ 1374 \ , & \text{otherwise} \end{cases} \quad .$$

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[5] These 8 students were all associated with a single facility where estimated handicapped population was conservative by a factor of 10.

Table B.12

EMPIRICAL DISTRIBUTION OF ADJUSTED SQUARED WEIGHTS FOR LEVEL 1 STUDENT SAMPLE IN REGULAR SCHOOLS

C	n_C	Upper Percentile of $\{W_i^2\}$	D_C
0	675	0	-
.2	394	41.63	1.19155
1	157	76.74	1.30421
2	76	88.74	1.39614
4	35	94.81	1.48714
6	23	96.59	1.54331
8	19	97.19	1.57516
9	15	97.78	1.61469
10	11	98.37	1.65996
11	9	98.67	1.68353
12	7	98.96	1.70899
13	5	99.26	1.74017
14	5	99.26	1.74017
15	5	99.26	1.74017
16	1	99.85	1.79321
17	0	100.00	1.81085

Table B.13

EMPIRICAL DISTRIBUTION OF ADJUSTED SQUARED WEIGHTS FOR LEVEL 1 STUDENT SAMPLE IN SPECIAL SCHOOLS

C	n_C	Upper Percentile of $\{W_i^2\}$	D_C
0	121	0	-
.2	79	34.71	1.267
1	32	73.55	1.341
2	20	83.47	1.400
3	14	88.43	1.449
4	8	93.39	1.508
5	4	96.69	1.551
6	2	98.35	1.580
7	0	100.00	1.597

Table B.14

EMPIRICAL DISTRIBUTION OF ADJUSTED SQUARED WEIGHTS FOR LEVEL 2 STUDENT SAMPLE IN REGULAR SCHOOLS

C	n_C	Upper Percentile of $\{W_i^2\}$	D_C
0	42	0	-
.2	24	42.86	1.254
.7	12	71.43	1.358
1	7	83.33	1.380
3.53	4	90.48	1.532
5.39	2	95.24	1.699
13	1	97.62	1.699
14	0	100.00	1.954

Table B.15

EMPIRICAL DISTRIBUTION OF ADJUSTED SQUARED WEIGHTS FOR LEVEL 2 STUDENT SAMPLE IN SPECIAL SCHOOLS

C	n_C	Upper Percentile of $\{W_i^2\}$	D_C
.031	1	12.50	1
.074	2	25.00	1.047
.083	3	37.50	1.042
.160	4	50.00	1.080
.200	5	62.50	1.092
1.450	6	75.00	1.545
2.306	7	87.50	1.627
3.699	8	100.00	1.652

Table B.16

EMPIRICAL DISTRIBUTION OF ADJUSTED SQUARED WEIGHTS
FOR FACILITY COMPONENT STUDENT SAMPLE

C	n_C	Upper Percentile of $\{W_i^2\}$	D_C
0	550	0.00	-
.2	188	65.82	1.32561
1	120	78.18	1.64037
2	88	84.00	2.02414
3	56	89.82	2.2012
4	24	95.64	2.26143
5	16	97.09	2.27859
6	8	98.55	2.30662
7	8	98.55	2.30662
22	8	98.55	2.30662
23	0	100.00	2.74894

To preserve the integrity of the sum of original weights, nontruncated weights were proportionally inflated. Specifically,

$$w_i^{**} = \begin{cases} 1.06601 \quad w_i & , \quad \text{if } w_i \leq 1374 \\ 1374 & , \quad \text{otherwise} \end{cases} .$$

VII. COMPUTATION OF STANDARD ERRORS

A. Overview

The stratified multistage sample design for the School Component of the IEP Survey involves replication for the purposes of computing estimates of the sampling error for linear statistics. For the Facility Component, however, a decision was made to maximize stratification control for the relatively small sample of facilities by selecting one facility per first stage stratum. To reflect this, sampling error estimates for totals (or more generally, linear statistics) were developed based on pseudo-replication procedures.[6]

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[6] Cochran, W. G., Sampling Techniques. New York: John Wiley and Sons, pp. 141-144, 1963.

For both components (i.e., School (including the two longitudinal components) and Facility) sampling error estimates of nonlinear statistics were based on Taylor series methods.[7] Specific details are presented in the following subsections.

B. General Theory

1. Sampling Error Estimation for Estimated Totals under Replication

It is convenient to rewrite the estimated total for a particular characteristic of a reporting group as

$$\begin{aligned} {}_g\hat{Y}_{++} &= \sum_{h=1}^{H} \sum_{j=1}^{n_h} \frac{Y_{hj}\ {}_gX_{hj}}{\pi_{hj}} \\ &= \sum_{h=1}^{H} {}_g\hat{Y}_{h+} \quad . \end{aligned}$$

The sampling variability is then given by

$$\mathrm{Var}({}_g\hat{Y}_{++}) = \sum_{h=1}^{H} \mathrm{Var}({}_g\hat{Y}_{h+})$$

since all covariance terms vanish under independent sampling in each stratum. The problem thus reduces to estimating the variance of an estimated stratum total. If the n_h units were taken with replacement, it is more appropriate to view each stratum estimate as the average of its n_h independent estimates of the stratum total, that is, as

$${}_g\hat{Y}_{h+} = \frac{\displaystyle\sum_{j=1}^{n_h} \frac{Y_{hj}\ {}_gX_{hj}}{p_{hj}}}{n_h}$$

where

p_{hj} = single draw inclusion probability of unit hj. ($\pi_{hj} = n_h p_{hj}$)

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[7] Woodruff, R. S., Simple Method for Approximating Variance of a Complicated Estimate. JASA, Vol. 66, No. 334, pp. 411-414, June 1971.

Having done so, it is easily shown[8] that

$$\hat{Var}({}_g\hat{Y}_{h+}) = \frac{1}{n_h(n_h - 1)} \sum_{j=1}^{n_h} \left[\frac{Y_{hj}\,{}_gX_{hj}}{p_{hj}} - {}_g\hat{Y}_{h+} \right]^2$$

is an unbiased estimate of $Var({}_g\hat{Y}_{h+})$.

That is,

$$\hat{Var}({}_g\hat{Y}_{++}) = \sum_{h=1}^{H} \hat{Var}({}_g\hat{Y}_{h+})$$

is an unbiased estimate of $Var({}_g\hat{Y}_{++})$.

Similarly,

$$Cov({}_g\hat{Y}_{++}, {}_g\hat{X}_{++}) = \sum_{h=1}^{H} Cov({}_g\hat{Y}_{h+}, {}_g\hat{X}_{h+})$$

where

$$\hat{Cov}({}_g\hat{Y}_{h+}, {}_g\hat{X}_{h+}) = \frac{1}{n_h(n_h - 1)} \sum_{j=1}^{n_h} \left[\frac{Y_{hj}\,{}_gX_{hj}}{p_{hj}} - {}_g\hat{Y}_{h+} \right] \left[\frac{{}_gX_{hj}}{p_{hj}} - {}_g\hat{X}_{h+} \right]$$

provides an unbiased estimate of $Cov({}_gY_{h+}, {}_gX_{h+})$. That is, the overall covariance term is estimated without bias by

$$\hat{Cov}({}_g\hat{Y}_{++}, {}_g\hat{X}_{++}) = \sum_{h=1}^{H} \hat{Cov}({}_g\hat{Y}_{h+}, {}_g\hat{X}_{h+}) \ .$$

2. Sampling Error Estimation for Estimated Means under Replication

In Section II, the general form for an estimated mean was written as

$${}_g\hat{\mu}_Y = \frac{{}_g\hat{Y}_{++}}{{}_g\hat{X}_{++}} \ .$$

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[8] Raj, Des, Sampling Theory. McGraw-Hill, 1968, pp. 120-121.

In light of the bias in this estimator, it is more appropriate to deal with the mean squared error (MSE) in lieu of the variance. That is,

$$\mathrm{MSE}({}_g\hat{\mu}_Y) = E({}_g\hat{\mu}_Y - {}_g\mu_Y)^2 \quad .$$

This parameter is generally estimated using the first-order Taylor linearized form of the statistic (i.e., first-order Taylor expansion of estimator evaluated at true parameter value), ${}_g\tilde{\mu}_Y$, which can be written as

$$\begin{aligned}{}_g\tilde{\mu}_Y &= {}_g\mu_Y + \frac{({}_g\hat{Y}_{++} - {}_gY_{++})}{{}_gX_{++}} - {}_g\mu_Y \frac{({}_g\hat{X}_{++} - {}_gX_{++})}{{}_gX_{++}} \\ &= {}_g\mu_Y + \frac{1}{{}_gX_{++}} ({}_g\hat{Y}_{++} - {}_g\mu_Y\, {}_g\hat{X}_{++}) \quad .\end{aligned}$$

That is,

$$\begin{aligned}\mathrm{MSE}({}_g\hat{\mu}_Y) &\doteq E\left({}_g\tilde{\mu}_Y - {}_g\mu_Y\right)^2 \\ &= \mathrm{Var}\left\{\frac{1}{{}_gX_{++}} ({}_g\hat{Y}_{++} - {}_g\mu_Y\, {}_g\hat{X}_{++})\right\} \\ &= \frac{1}{({}_gX_{++})2} \mathrm{Var}({}_g\hat{Y}_{++} - {}_g\mu_Y\, {}_g\hat{X}_{++}) \quad ,\end{aligned}$$

which, on expanding and taking the required expectation is easily seen to be

$$\mathrm{MSE}({}_g\hat{\mu}_Y) \doteq \frac{1}{({}_gX_{++})^2} \left\{ \mathrm{Var}({}_g\hat{Y}_{++})+({}_g\mu_Y)^2\, \mathrm{Var}({}_g\hat{X}_{++}) -2\ {}_g\mu_Y\, \mathrm{Cov}({}_g\hat{Y}_{++},{}_g\hat{X}_{++})\right\} .$$

Estimation procedures for each component term have already been described, leaving

$$\widehat{\mathrm{MSE}}({}_g\hat{\mu}_Y) \doteq \frac{1}{({}_g\hat{X}_{++})^2} \left\{ \widehat{\mathrm{Var}}({}_g\hat{Y}_{++})+({}_g\hat{\mu}_Y)^2\, \widehat{\mathrm{Var}}({}_g\hat{X}_{++}) -2\ {}_g\hat{\mu}_Y\, \widehat{\mathrm{Cov}}({}_g\hat{Y}_{++},{}_g\hat{X}_{++}) \right\} .$$

To compute this estimate of precision, define the characteristic

$${}_gZ(a,b) = \frac{(Y - a)\;{}_gX}{b} \qquad a,b \text{ fixed} \qquad .$$

Then

$${}_g\hat{Z}_{++}(a,b) = \sum_{h=1}^{H} \sum_{j=1}^{n_h} \frac{(Y_{hj} - a)\;{}_gX_{hj}}{b\pi_{hj}}$$

$$= \sum_{h=1}^{H} {}_g\hat{Z}_{h+} \qquad .$$

Furthermore,

$$\mathrm{Var}({}_g\hat{Z}_{++}(a,b)) = \left\{ \frac{1}{b^2} \quad \mathrm{Var}({}_g\hat{Y}_{++}) - 2a\ \mathrm{Cov}({}_g\hat{Y}_{++}, {}_g\hat{X}_{++}) + a^2\ \mathrm{Var}({}_g\hat{X}_{++}) \right\}$$

has an unbiased estimator given by

$$\hat{\mathrm{Var}}({}_g\hat{Z}_{++}(a,b)) = \sum_{h=1}^{H} \frac{1}{n_h(n_h - 1)} \sum_{j=1}^{n_h} \left(\frac{Z_{hj}(a,b)\;{}_gX_{hj}}{p_{hj}} - {}_g\hat{Z}_{h+}(a,b) \right)^2$$

$$= \sum_{h=1}^{H} \frac{n_h}{n_h - 1} \sum_{j=1}^{n_h} \left(\frac{Z_{hj}(a,b)\;{}_gX_{hj}}{\pi_{hj}} - \frac{{}_g\hat{Z}_{h+}(a,b)}{n_h} \right)^2 \qquad .$$

This expression, evaluated at

$a = {}_g\hat{\mu}_Y$

$b = {}_g\hat{X}_{++}$

is easily shown to yield

$$\hat{\mathrm{Var}}({}_g\hat{Z}_{++}\ ({}_g\hat{\mu}_Y, {}_g\hat{X}_{++})) = \hat{\mathrm{Var}}({}_g\tilde{\mu}_Y) \qquad .$$

This provides a direct way of computing the estimated variance of a sample mean. Clearly, however, no interest lies in the point estimates, since

$${}_g\hat{Z}_{++}({}_g\hat{\mu}_Y, {}_g\hat{X}_{++}) = 0 \qquad \text{with probability 1.}$$

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3. Sampling Error Estimates for Contrasts under Replication

In addition to simple totals and means, interest lies in two types of contrasts:

a) The difference between two characteristics measured on the same analysis unit for a given reporting group. (Type I contrast)

b) The difference between two reporting groups of a given population on a given characteristic. (Type II contrast)

In either case, the "difference" could be expressed in terms of totals or means. Specifically, the need exists for estimating, for type I contrasts,

$$\mathrm{Var}({}_{g}\hat{Y}_{++} - {}_{g}\hat{M}_{++}),$$

or

$$\mathrm{MSE}({}_{g}\hat{\mu}_{Y} - {}_{g}\hat{\mu}_{M}) \quad ,$$

and, for type II contrasts,

$$\mathrm{Var}({}_{g_1}\hat{Y}_{++} - {}_{g_2}\hat{Y}_{++}) \quad ,$$

or

$$\mathrm{MSE}({}_{g_1}\hat{\mu}_{Y} - {}_{g_2}\hat{\mu}_{Y}) \quad .$$

By redefining the characteristic of interest, these measures of precision are expressible in terms of existing notation. Specifically, for a type I contrast, define

$${}_{g}z_{hj} = (Y_{hj} - M_{hj})\, {}_{g}X_{hj} \quad ,$$

and note that

$${}_{g}\hat{Z}_{++} = \sum_{h=1}^{H} \sum_{j=1}^{n_h} \frac{{}_{g}z_{hj}}{\pi_{hj}}$$

$$= {}_{g}\hat{Y}_{++} - {}_{g}\hat{M}_{++} \quad ,$$

and

$$ {}_g\hat{\mu}_Z = \frac{{}_g\hat{Z}_{++}}{{}_g\hat{X}_{++}} $$

$$ = {}_g\hat{\mu}_Y - {}_g\hat{\mu}_M \quad . $$

As such,

$$ \mathrm{Var}({}_g\hat{Z}_{++}) = \mathrm{Var}({}_g\hat{Y}_{++} - {}_g\hat{M}_{++}) $$

and

$$ \mathrm{MSE}({}_g\hat{\mu}_Z) = \mathrm{MSE}({}_g\hat{\mu}_Y - {}_g\hat{\mu}_M) \quad . $$

Similarly, for type II contrasts on totals, define

$$ {}_{g_1 - g_2}Z^{*}_{hj} = Y_{hj}({}_{g_1}X_{hj} - {}_{g_2}X_{hj}) \quad , $$

and note that

$$ {}_{g_1 - g_2}\hat{Z}^{*}_{++} = \sum_{h=1}^{H} \sum_{j=1}^{n_h} \frac{{}_{g_1 - g_2}Z_{hj}}{\pi_{hj}} $$

$$ = {}_{g_1}\hat{Y}_{++} - {}_{g_2}\hat{Y}_{++} \quad . $$

As such

$$ \mathrm{Var}({}_{g_1 - g_2}\hat{Z}^{*}_{++}) = \mathrm{Var}({}_{g_1}\hat{Y}_{++} - {}_{g_2}\hat{Y}_{++}) \quad . $$

For type II contrasts of means, however, more care is needed. In particular, precision is approximated by the variance of the Taylor linearized statistic of the difference between the means of two reporting groups on some characteristic of interest. That is

$$ \mathrm{MSE}({}_{g_1}\hat{\mu}_Y - {}_{g_2}\hat{\mu}_Y) \doteq \mathrm{Var}\left(\overbrace{{}_{g_1}\hat{\mu}_Y - {}_{g_2}\hat{\mu}_Y}\right) $$

where

$$\left(\widetilde{{}_{g_1}\mu_Y - {}_{g_2}\mu_Y}\right) = {}_{g_1}\tilde{\mu}_Y - {}_{g_2}\tilde{\mu}_Y$$

$$= \frac{1}{{}_{g_1}X_{++}} \left({}_{g_1}\hat{Y}_{++} - {}_{g_1}\mu_Y \, {}_{g_1}\hat{X}_{++}\right) - \frac{1}{{}_{g_2}X_{++}} \left({}_{g_2}\hat{Y}_{++} - {}_{g_2}\mu_Y \, {}_{g_2}\hat{X}_{++}\right) .$$

Moreover,

$$\mathrm{Var}({}_{g_1}\tilde{\mu}_Y - {}_{g_2}\tilde{\mu}_Y) = \mathrm{Var}({}_{g_1}\tilde{\mu}_Y) + \mathrm{Var}({}_{g_2}\tilde{\mu}_Y) - 2\,\mathrm{Cov}({}_{g_1}\tilde{\mu}_Y, {}_{g_2}\tilde{\mu}_Y) .$$

Approximating the variance of these Taylor linearized means has been shown previously. To express the covariance in terms of variances, however, requires much effort. Specifically, by direct expansion

$$\mathrm{Cov}({}_{g_1}\tilde{\mu}_Y, {}_{g_2}\tilde{\mu}_Y) = \frac{1}{{}_{g_1}X_{++}\,{}_{g_2}X_{++}} \left\{ \begin{array}{l} \mathrm{Cov}({}_{g_1}\hat{Y}_{++}, {}_{g_2}\hat{Y}_{++}) - {}_{g_2}\mu_Y\,\mathrm{Cov}({}_{g_1}\hat{Y}_{++}, {}_{g_2}\hat{X}_{++}) \\ \\ - {}_{g_1}\mu_Y\,\mathrm{Cov}({}_{g_1}\hat{X}_{++}, {}_{g_2}\hat{Y}_{++}) + {}_{g_1}\mu_Y\,{}_{g_2}\mu_Y\,\mathrm{Cov}({}_{g_1}\hat{X}_{++}, {}_{g_2}\hat{X}_{++}) \end{array} \right\} .$$

These covariance terms can be individually obtained in the following circuitous fashion:

For the first covariance, define

$$z_{hj} = Y_{hj}({}_{g_1}X_{hj} + {}_{g_2}X_{hj}) ,$$

and note that

$$\hat{Z}_{++} = \sum_{h=1}^{H} \sum_{j=1}^{n_h} \frac{z_{hj}}{\pi_{hj}}$$

$$= {}_{g_1}\hat{Y}_{++} + {}_{g_2}\hat{Y}_{++} .$$

Then

$$\mathrm{Var}(\hat{Z}_{++}) = \mathrm{Var}({}_{g_1}\hat{Y}_{++}) + \mathrm{Var}({}_{g_2}\hat{Y}_{++}) + 2\ \mathrm{Cov}({}_{g_1}\hat{Y}_{++}, {}_{g_2}\hat{Y}_{++}) \quad ,$$

so that

$$\mathrm{Cov}({}_{g_1}\hat{Y}_{++}, {}_{g_2}\hat{Y}_{++}) = \tfrac{1}{2}\{\mathrm{Var}(\hat{Z}_{++}) - \mathrm{Var}({}_{g_1}\hat{Y}_{++}) - \mathrm{Var}({}_{g_2}\hat{Y}_{++})\} \quad .$$

Moreover, the form of the unbiased estimator of each component term has already been described, yielding the obvious unbiased estimator of the required covariance term. Defining an appropriate characteristic on each analysis unit will similarly yield the remaining covariances. Specifically,

$$z_{hj} = Y_{hj}\ {}_{g_1}X_{hj} + {}_{g_2}X_{hj} \qquad \text{(for the second covariance term),}$$

$$z_{hj} = Y_{hj}\ {}_{g_2}X_{hj} + {}_{g_1}X_{hj} \qquad \text{(for the third covariance term),}$$

and

$$z_{hj} = {}_{g_1}X_{hj} + {}_{g_2}X_{hj} \qquad \text{(for the last covariance term)} \quad .$$

To compute this estimate of precision (i.e., for a type II contrast between two means), define the characteristic

$$z_{hj}(a,b,c,d) = [\frac{1}{b}\ (Y_{hj} - a\ {}_{g_1}X_{hj})] - [\frac{1}{d}\ (Y_{hj} - c\ {}_{g_2}X_{hj})] \quad ,$$

and hence the parameter

$$Z_{++}(a,b,c,d) = \sum_{h=1}^{H} \sum_{j=1}^{N_h} z_{hj}(a,b,c,d) \quad .$$

This parameter has unbiased estimator given by

$$\hat{Z}_{++}(a,b,c,d) = \sum_{h=1}^{H} \sum_{j=1}^{n_h} \frac{z_{hj}(a,b,c,d)}{\pi_{hj}}$$

$$= \frac{1}{b} \left({}_{g_1}\hat{Y}_{++} - a \; {}_{g_1}\hat{X}_{++}\right) - \frac{1}{d} \left({}_{g_2}\hat{Y}_{++} - c \; {}_{g_2}\hat{X}_{++}\right) \quad .$$

Moreover,

$$\mathrm{Var}(\hat{Z}_{++}(a,b,c,d)) = \mathrm{Var}\{\frac{1}{b} ({}_{g_1}\hat{Y}_{++} - a \; {}_{g_1}\hat{X}_{++})\} + \mathrm{Var}\{\frac{1}{d} ({}_{g_2}\hat{Y}_{++} - c \; {}_{g_2}\hat{X}_{++})\}$$

$$- 2 \, \mathrm{Cov}\{\frac{1}{b} ({}_{g_1}\hat{Y}_{++} - a \; {}_{g_1}\hat{X}_{++}), \frac{1}{d} ({}_{g_2}\hat{Y}_{++} - c \; {}_{g_2}\hat{X}_{++})\}$$

has unbiased estimator given by

$$\hat{\mathrm{Var}}(\hat{Z}_{++}(a,b,c,d)) = \sum_{h=1}^{H} \frac{1}{n_h(n_h-1)} \sum_{j=1}^{n_h} \left(\frac{z_{hj}(a,b,c,d)}{p_{hj}} - \hat{Z}_{h+}(a,b,c,d) \right)^2 ,$$

where

$$\hat{Z}_{h+}(a,b,c,d) = \sum_{j=1}^{n_h} \frac{z_{hj}(a,b,c,d)}{\pi_{hj}} \quad .$$

Finally, it is easily shown that:

1. Choosing

$$a = {}_{g_1}\mu_Y \; , \qquad c = {}_{g_2}\mu_Y \; ,$$

$$b = {}_{g_1}X_{++} \; , \qquad d = {}_{g_2}X_{++} \; ,$$

yields

$$\mathrm{Var}(\hat{Z}_{++}(a,b,c,d)) = \mathrm{Var}({}_{g_1}\tilde{\mu}_Y - {}_{g_2}\tilde{\mu}_Y) \quad .$$

2. Evaluating

$$\hat{\mathrm{Var}}[\hat{Z}_{++}(a,b,c,d)]$$

at

$$a = {}_{g_1}\hat{\mu}_Y \;, \quad c = {}_{g_2}\hat{\mu}_Y \;,$$

$$b = {}_{g_1}\hat{X}_{++} \;, \quad d = {}_{g_2}\hat{X}_{++} \;,$$

yields the approximate variance of the type II contrast of means, i.e.,

$$\hat{\mathrm{Var}}(\hat{Z}_{++}({}_{g_1}\hat{\mu}_Y, {}_{g_1}\hat{X}_{++}, {}_{g_2}\hat{\mu}_Y, {}_{g_2}\hat{X}_{++})) = \hat{\mathrm{Var}}({}_{g_1}\hat{\mu}_Y - {}_{g_2}\hat{\mu}_Y) \quad .$$

This estimate is not unbiased.

3. No interest exists in the point estimate giving rise to the variance approximation since

$$\hat{Z}_{++}({}_{g_1}\hat{\mu}_Y, {}_{g_1}\hat{X}_{++}, {}_{g_2}\hat{\mu}_Y, {}_{g_2}\hat{X}_{++}) = 0 \qquad \text{with probability 1.}$$

The estimate serves merely as a convenient mechanism for approximating the variance of an estimate that is of interest (i.e., estimated type II contrast in means).

4. Role of Pseudoreplication

The previous theory requires that every first-stage stratum be allocated at least two sample members (i.e., $n_h \geq 2$ for all h). For the most part, however, this condition is not met in the Facility Component design. Rather, first-stage units were paired (collapsed) and the variance of linear statistics approximated by summing the squared estimated PSU differences over the collapsed strata.

Notationally, let T be a linear function of p population parameters (each of which having a corresponding stratum parameter), say

$$T = a_0 + \sum_{h=1}^{H} \sum_{k=1}^{p} a_k \, T_{hk}$$

$$= a_0 + \sum_{h=1}^{H} T_{h+} \quad .$$

Then the linear statistic estimating this parameter would be

$$\hat{T} = a_0 + \sum_{h=1}^{H} \hat{T}_{h+}$$

with

$$Var(\hat{T}) = \sum_{h=1}^{H} Var(\hat{T}_{h+}) .$$

This variance would be approximated by

$$\tilde{Var}(\hat{T}) = \sum_{\ell=1}^{H/2} (\hat{T}_{\ell_{1+}} - \hat{T}_{\ell_{2+}})^2$$

$$= \sum_{\ell=1}^{H/2} (\sum_{k=1}^{p} a_k(\hat{T}_{\ell_1 k} - \hat{T}_{\ell_2 k})^2$$

where $\hat{T}_{\ell_1 k}$ and $\hat{T}_{\ell_2 k}$ are the estimates for totals on the k^{th} parameter of the two strata forming the ℓth pair. Then:

$$E(\tilde{Var}(\hat{T})) = \sum_{\ell=1}^{H/2} E\left[\sum_{k=1}^{p} a_k \{(\hat{T}_{\ell_1 k} - T_{\ell_1 k}) - (\hat{T}_{\ell_2 k} - T_{\ell_2 k}) + (T_{\ell_1 k} - T_{\ell_2 k})\}^2 \right]$$

Upon expanding and collecting terms,

$$E(\hat{Var}(\hat{T})) = Var(\hat{T}) + \sum_{\ell=1}^{H/2} \sum_{k=1}^{p} a_k(T_{\ell_1 k} - T_{\ell_2 k})^2 .$$

That is, the method of pseudoreplication provides a conservative estimate of the true variance. By collapsing strata which are "similar" with respect to the parameter of interest, however, this positive bias should not prove excessive.

The method of summing squared differences across the pseudostrata is equivalent to assuming that each member of the pair in a given pseudostratum was selected with replacement after collapsing two strata of equal size.

Collapsing strata of equal size is sufficient to ensure that the inclusion probabilities are the same for a unit in its original or its collapsed stratum.

For completeness, the positive bias term for a total, linearized mean, and type I and II contrasts on totals and means, will be specified. In every case, this bias reflects the impact of pseudoreplication and does not address the use of estimated coefficients in the linear functions (which is not associated with a lack of replication in the sample design). Similar results would hold for collapsing more than two strata and/or allowing each component stratum to contribute more than one replicate.

Case I: Simple Total

Here, an example would be

$$T = {}_gY_{++}$$

$$= \sum_{h=1}^{H} {}_gY_{h+} \quad .$$

In this case,

$$\hat{T} = \sum_{h=1}^{H} {}_g\hat{Y}_{h+} \quad ,$$

and

$$\widetilde{\text{Var}}(\hat{T}) = \sum_{\ell=1}^{H/2} ({}_g\hat{Y}_{\ell_{1+}} - {}_g\hat{Y}_{\ell_{2+}})^2 \quad .$$

That is, $p = 1$ and $a_1 = 1$.

Such an estimator of precision has bias given by

$$B = \sum_{\ell=1}^{H/2} ({}_gY_{\ell_1+} - {}_gY_{\ell_2+})^2 \quad .$$

Case II: Type I contrast on totals

Here, an example would be the estimation of

$$T = {}_gY_{++} - {}_gM_{++}$$

by

$$\hat{T} = \sum_{h=1}^{H} ({}_g\hat{Y}_{h+} - {}_g\hat{M}_{h+}) \quad .$$

In this case

$$\tilde{\mathrm{Var}}(\hat{T}) = \sum_{\ell=1}^{H/2} \left[({}_g\hat{Y}_{\ell_1+} - {}_g\hat{M}_{\ell_1+}) - ({}_g\hat{Y}_{\ell_2+} - {}_g\hat{M}_{\ell_2+}) \right]^2$$

which exhibits positive bias given by

$$B = \sum_{\ell=1}^{H/2} \left[({}_gY_{\ell_1+} - {}_gY_{\ell_2+}) - ({}_gM_{\ell_1+} - {}_gM_{\ell_2+}) \right]^2 \quad .$$

That is,

$$p = 2, \quad a_1 = 1, \quad a_2 = -1 \quad .$$

Case IV: Linearized Mean

Here, an example would be the estimation of

$$T = {}_g\mu_Y$$

by

$$\hat{T} = {}_g\hat{\mu}_Y \quad .$$

In the case of a ratio estimate, we choose to estimate precision based on the Taylor linearization of the statistic. Specifically,

$$\mathrm{MSE}({}_g\hat{\mu}_Y) \doteq \mathrm{Var}({}_g\tilde{\mu}_Y)$$

where

$$\tilde{\mu}_Y = {}_g\mu_Y + \frac{({}_g\hat{Y}_{++} - {}_gY_{++})}{{}_gX_{++}} - {}_g\mu_Y \frac{({}_g\hat{X}_{++} - {}_gX_{++})}{{}_gX_{++}}$$

$$= {}_g\mu_Y + \frac{{}_g\hat{Y}_{++}}{{}_gX_{++}} - {}_g\mu_Y \frac{{}_g\hat{X}_{++}}{{}_gX_{++}}$$

$$= {}_g\mu_Y + \sum_{h=1}^{H} \left(\frac{{}_g\hat{Y}_{h+}}{{}_gX_{++}} - \frac{{}_g\mu_Y}{{}_gX_{++}} \; {}_g\hat{X}_{h+} \right)$$

with

$$\mathrm{Var}(\tilde{\mu}_Y) = \frac{1}{({}_gX_{++})^2}\ \{\mathrm{Var}({}_g\hat{Y}_{++}) + ({}_g\mu_Y)^2\ \mathrm{Var}({}_g\hat{X}_{++}) - 2\ {}_g\mu_Y\ \mathrm{Cov}({}_g\hat{Y}_{++}, {}_gX_{++})\}\ .$$

The use of pseudoreplication to estimate second order terms (i.e., variances and covariances) introduces a positive bias given by

$$B = \frac{1}{({}_gX_{++})^2} \sum_{\ell=1}^{H/2} \left[({}_gY_{\ell_1+} - {}_gY_{\ell_2+}) - {}_g\mu_Y\ ({}_gX_{\ell_1+} - {}_gX_{\ell_2+}) \right]^2 \quad .$$

In this case, the variance would be estimated by

$$\mathrm{V\tilde{a}r}(\tilde{\mu}_Y) = \sum_{\ell=1}^{H/2} \left(\frac{({}_g\hat{Y}_{\ell_1+} - {}_g\hat{\mu}_Y\ {}_g\hat{X}_{\ell_1+})}{{}_g\hat{X}_{++}} - \frac{({}_g\hat{Y}_{\ell_2+} - {}_g\hat{\mu}_Y\ {}_g\hat{X}_{\ell_2+})}{{}_g\hat{X}_{++}} \right)^2 \quad .$$

That is, $p = 2$, $a_1 = 1$, $a_2 = -{}_g\mu_Y$ and the coefficients are replaced by their associated estimates.

Case V: Type I Contrasts on Means

Here, an example would be the estimation of

$$T = {}_g\mu_Y - {}_g\mu_M$$

by

$$\hat{T} = {}_g\hat{\mu}_Y - {}_g\hat{\mu}_M \quad .$$

In the case of ratio estimates, precision is estimated on the Taylor linearized form of the statistic. That is,

$$\mathrm{MSE}(\hat{T}) \doteq \mathrm{Var}(\tilde{T})$$

$$= \mathrm{Var} \left\{ ({}_g\mu_Y + \frac{({}_g\hat{Y}_{++} - {}_gY_{++})}{{}_gX_{++}} - {}_g\mu_Y \frac{({}_g\hat{X}_{++} - {}_gX_{++})}{{}_gX_{++}} \right.$$

$$\left. - ({}_g\mu_M + \frac{({}_g\hat{M}_{++} - {}_gM_{++})}{{}_gX_{++}} - {}_g\mu_M \frac{({}_g\hat{X}_{++} - {}_gX_{++})}{{}_gX_{++}}) \right\}$$

$$= \frac{1}{({}_gX_{++})^2} \left\{ \mathrm{Var}\{({}_gX_{++})({}_g\mu_Y - {}_g\mu_M) + {}_g\hat{Y}_{++} - {}_g\hat{M}_{++} + ({}_g\mu_M - {}_g\mu_Y)\ {}_g\hat{X}_{++} \right\} .$$

That is, a linear function with p = 3, $a_1 = 1$, $a_2 = -1$, $a_3 = ({}_g\mu_M - {}_g\mu_Y)$. As such, pseudoreplication introduces a positive bias given by

$$B = \frac{1}{({}_gX_{++})^2} \sum_{\ell=1}^{H/2} \left\{ ({}_gY_{\ell_1+} - {}_gY_{\ell_2+}) - ({}_gM_{\ell_1+} - {}_gM_{\ell_2+}) + ({}_g\mu_M - {}_g\mu_Y)\,({}_gX_{\ell_1+} - {}_gX_{\ell_2+}) \right\}^2 .$$

The variance would be approximated using estimates of the appropriate coefficients in the Taylor linearization. Specifically,

$$V\tilde{a}r(\hat{T}) \doteq \left\{ \sum_{\ell=1}^{H/2} ({}_g\hat{Y}_{\ell_1+} - {}_g\hat{Y}_{\ell_2+}) - ({}_g\hat{M}_{\ell_1+} - {}_g\hat{M}_{\ell_2+}) + ({}_g\hat{\mu}_M - {}_g\hat{\mu}_Y)\,({}_g\hat{X}_{\ell_1+} - {}_g\hat{X}_{\ell_2+}) \right\}^2 .$$

Case VI: Type II Contrasts on Means

Here an example would be the estimation of

$$T = {}_{g_1}\mu_Y - {}_{g_2}\mu_Y$$

by

$$\hat{T} = {}_{g_1}\hat{\mu}_Y - {}_{g_2}\hat{\mu}_Y \quad .$$

Once again, precision is estimated for the Taylor linearized form of the statistic. In this case,

$$\begin{aligned} MSE(\hat{T}) &\doteq Var(\tilde{T}) \\ &= Var \left\{ \left({}_{g_1}\mu_Y + \frac{({}_{g_1}\hat{Y}_{++} - {}_{g_1}Y_{++})}{{}_{g_1}X_{++}} - {}_{g_1}\mu_Y \frac{({}_{g_1}\hat{X}_{++} - {}_{g_1}X_{++})}{{}_{g_1}X_{++}} \right) \right. \\ &\qquad \left. - \left({}_{g_2}\mu_Y + \frac{({}_{g_2}\hat{Y}_{++} - {}_{g_2}Y_{++})}{{}_{g_2}X_{++}} - {}_{g_2}\mu_Y \frac{({}_{g_2}\hat{X}_{++} - {}_{g_2}X_{++})}{{}_{g_2}X_{++}} \right) \right\} \\ &= Var \left\{ ({}_{g_1}\mu_Y - {}_{g_2}\mu_Y) + \frac{{}_{g_1}\hat{Y}_{++}}{{}_{g_1}X_{++}} - \frac{{}_{g_1}\mu_Y}{{}_{g_1}X_{++}}\,{}_{g_1}\hat{X}_{++} - \frac{{}_{g_2}\hat{Y}_{++}}{{}_{g_2}X_{++}} + \frac{{}_{g_2}\mu_Y}{{}_{g_2}X_{++}}\,{}_{g_2}\hat{X}_{++} \right\} . \end{aligned}$$

That is, a linear function with $p = 4$ and

$$a_1 = 1/{}_{g_1}X_{++} \ ,$$

$$a_2 = -\ {}_{g_1}\mu_Y/{}_{g_1}X_{++} \ ,$$

$$a_3 = -\ 1/{}_{g_2}X_{++} \ ,$$

$$a_4 = {}_{g_2}\mu_Y/{}_{g_2}X_{++} \ .$$

As such, pseudoreplication introduces a positive bias given by

$$B = \sum_{\ell=1}^{H/2} \left\{ \frac{1}{{}_{g_1}X_{++}} ({}_{g_1}Y_{\ell_1 +} - {}_{g_1}Y_{\ell_2 +}) - \frac{{}_{g_1}\mu_Y}{{}_{g_1}X_{++}} ({}_{g_1}X_{\ell_1 +} - {}_{g_1}X_{\ell_2 +}) - \frac{1}{{}_{g_2}X_{++}} ({}_{g_2}Y_{\ell_1 +} - {}_{g_2}Y_{\ell_2 +}) + \frac{{}_{g_2}\mu_Y}{{}_{g_2}X_{++}} ({}_{g_2}X_{\ell_1 +} - {}_{g_2}X_{\ell_2 +}) \right\}^2 .$$

This variance would be approximated using unbiased estimates of the appropriate coefficients in the Taylor linearization. Specifically,

$$\widetilde{Var}(\hat{T}) = \sum_{\ell=1}^{H/2} \left\{ \frac{1}{{}_{g_1}\hat{X}_{++}} ({}_{g_1}\hat{Y}_{\ell_1 +} - {}_{g_1}\hat{Y}_{\ell_2 +}) - \frac{{}_{g_1}\hat{\mu}_Y}{{}_{g_1}\hat{X}_{++}} ({}_{g_1}\hat{X}_{\ell_1 +} - {}_{g_1}\hat{X}_{\ell_2 +}) - \frac{1}{{}_{g_2}\hat{X}_{++}} ({}_{g_2}\hat{Y}_{\ell_1 +} - {}_{g_2}\hat{Y}_{\ell_2 +}) + \frac{{}_{g_2}\hat{\mu}_Y}{{}_{g_2}\hat{X}_{++}} ({}_{g_2}\hat{X}_{\ell_1 +} - {}_{g_2}\hat{X}_{\ell_2 +}) \right\}^2$$

5. Additional Feature of Estimating Error by PSU Differences

Estimating error by PSU differences provides a partial accounting for measurement error. Specifically, measurement errors are generally taken to be additive and with zero mean. When the measurement errors are uncorrelated between PSU's, PSU differences will reflect both the sampling *and* measurement error processes. For example, if measurement errors are only correlated within a PSU (such as when measurement errors are solely due to interviewers and a given field person is assigned to no more than one PSU) then PSU differences will again reflect both sources of error. Measurement errors due to data processing, however, are unlikely to be confined to a single PSU or to have had any randomization of staff to a PSU etc. At the very minimum, however, squared PSU differences provide at least a partial accounting for the measurement errors that are bound to be contained in the ultimate data files.

C. Application of Error Approximation Methodology

Operationalization of error approximation methodology will be separately applied to the School Component (including both longitudinal components) and Facility Component in turn.

1. School Component

The School Component was supported by 232 sample PSUs (i.e., districts). In all, the first-stage frame contained 118 strata, 114 of which received an allocation of two sample districts per stratum (the remaining four were self-representers, and thus constituted individual strata having an allocation of one district each). Details were provided in Appendix A, Table A.11. During the data collection phase of the study, 22 districts refused to respond and 2 districts were found to be ineligible (see Appendix A, Table A.17). These nonrespondents/ineligibles forced additional first-stage strata (i.e., above and beyond the 4 self-representers) to be represented by a single responding PSU. Prior to analyzing data supporting this component, the following action was taken:

a) Four self-representers were pairwise collapsed into two pseudostrata each containing two sample members.

b) Two strata each containing one ineligible and one respondent were collapsed to form one strata (ineligibles then deleted).

c) Strata containing nonrespondents were collapsed (where necessary) to form strata having a minimum of two respondents per error stratum (nonrespondents were then deleted).

In all, 97 first-stage error strata were formed (14 having 3 sample members and 83 having 2 sample members; 3 original strata consisted entirely of nonrespondents). To collapse original first-stage sampling strata exhibiting nonresponse, an attempt was made to minimize the extent to which pseudoreplication overstates the variability associated with a given estimate of location. Specifically, scrutiny of the expressions for the magnitude of the positive bias associated with the precision of study estimates suggested that the pair should be "similar" with respect to key characteristic totals/means. To this end, strata were collapsed according to the ordered first-stage frame. It should be recalled that first-stage strata all contain approximately the same estimated number of handicapped students (more precisely, equal total size measure). The treatment afforded sample ineligibles in (b) does not properly deflate precision estimates to account for the frame inefficiency. To do this, one must cross reporting groups with an eligibility domain. Such an approach recognizes that frame inefficiency represents an extremely small source of variability in the present study and that some gains in computational simplicity are possible under the chosen action. Furthermore, sources of variability must be viewed in relative terms--nonresponse adjustments and measurement error both impact on overall true variability but for the most part, are rarely given expression.

Finally, it should be noted that nonresponse and ineligibility at subsequent stages of sampling (specifically, schools and then students) did not result in voiding a replicate (i.e., responding district) in any error stratum of analysis units. As such, these error strata and replicates allowed precision to be approximated for School Component student-level parameter estimates as well as district and school questionnaires.

2. Level One Longitudinal Component

The Level 1 Component was supported by a subsample of the responding students supporting the main School Component at each school. As such, in the absence of nonresponse and/or ineligibility among Level 1 sample students resulting in the voiding of a given replicate (i.e., responding district) of analysis units (here, students), the error structure (i.e., strata and replicates) of the previous section suffice for carrying out Level 1 student analyses. At analysis time, only 186 replicates (i.e., districts) were represented in the level 1 student respondents. Of the remaining 46 districts, 22 refused to participate in the IEP Study, 2 were ruled ineligible for the School Component Study, and 22 districts did not have any Level 1 eligibles associated with the School Component student sample. A total of 828 Level 1 students were selected in these districts with 796 responding students, 11 ineligible students, and

21 nonresponding students respectively. Student nonresponse did not void any district of Level 1 respondents but ineligibility caused two districts to suffer this fate.[9] In all then, the original 232 replicates of the 118 strata involved in the School Component (4 self-representers and 114 strata having two districts per stratum) were reduced to 186 responding replicates, 24 ineligibile replicates, and 22 nonresponding replicates distributed across strata according to Table B.17.

For the purposes of error estimation, strata types 5 and 7 can be ignored (since they do not provide a positive contribution to the error variance estimate). All remaining strata types with the exception of types 2 and 4 require collapsing of some sort in order to impute the proposed PSU-difference estimator of variance. For the purposes of the Level 1 Component, self-representers (i.e., strata type 1) were pairwise collapsed whereas remaining strata were pairwise collapsed (where necessary) according to the ordering of the School Component frame. In all, 98 error strata were so formed.

In analyzing Level 1 student data, reporting groups must be crossed with an indicator of eligibility (1 = ineligible, 2 = eligible) in order that estimated precision can reflect frame inefficiencies in selecting the Level 1 student sample.

3. Level Two Longitudinal Component

The Level 2 Component was supported by a subsample of the responding students supporting the Level 1 Longitudinal Component. Specifically, a subsample of districts was selected and any responding Level 1 student that was "first selected" was taken with certainty to support the Level 2 component. Moreover, the Level 2 subsample of districts was taken by collapsing original district strata and independently selecting one School Component sample district at random from each so-defined collapsed stratum. As such, Level 2 strata are well-defined, and can be pairwise collapsed according to the ordering of the original frame for the purposes of approximating precision via pseudoreplication. From the outset, however, the intention was to carry out only unweighted analyses of Level 2 data.

4. Facility Component

The Facility Component was supported by a two stage sample design with facilities at the first-stage and students at the second stage. At the

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[9] This fact is already reflected in the number of Level 1 districts represented on the Level 1 student analysis file.

Table B.17

RESPONDING STATUS OF DISTRICTS SUPPORTING THE LEVEL 1 LONGITUDINAL COMPONENT

Composition of Strata	Number of Strata	Number of Districts	Type of Strata
R	4	4	1
(R,R)	74	148	2
(R,R̄)	16	32	3
(R,IN)	18	36	4
(R̄,R̄)	3	6	5
(R̄,IN)	0	0	6
(IN,IN)	3	6	7
	118	232	-

first-stage, a two phase selection procedure was used to select the supporting sample. Specifically, 155 facilities were selected at phase I of Stage I (51, 437, 104 non-437) under maximum stratification (i.e., one facility selected in each Phase I stratum). Of these, 32 were deemed to be ineligible (2 from 437 frame, 30 non-437). At the second phase, the 49 eligible 437 facilities were selected with certainty, whereas the 74 eligible first-phase non-437 facilities were post-stratified by time of selection and residential-handicapping condition and a subsample of 30 facilities selected as discussed in relation to Table A.26 in Appendix A. Upon completion of data collection activities, 4 facilities were treated as nonrespondents (2 from 437 frame, 2 non-437) and 4 non-437 second phase sample members were ultimately found to be ineligible.[10] Error stratification and replicates were defined separately for 437 versus non-437 first-stage sample facilities, and each will be discussed in turn.

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[10] Two of these 4 ineligibles did serve handicapped students but did not hold IEPs on these children. As such, they were respondents for analyzing facility questionnaires, but ineligible for the student analyses.

a. 437 Error Stratification

The 51 phase I 437 strata were collapsed into 26 Phase I error strata (24 having 2 facilities per stratum and one having the remaining 3 facilities) so as to preserve the imposed frame ordering of strata. Two of these error strata were each found to be represented by a single responding facility (i.e., other sample facility was a nonrespondent in each case). In both cases, the error strata were paired with neighboring strata to form a total of 23 Phase I collapsed error strata. It should be noted that two of these error strata contained one responding and one ineligible sample facility. Crossing of all desired reporting groups with an indicator for eligiblity will thus result in accounting for frame inefficiency (here, ineligible members) in the estimation of precision using first-stage differences.

b. Non-437 Error Stratification

The sample of non-437 facilities poses two main problems:

1) Phase I non-437 strata were pooled in forming Phase II strata (more specifically, Phase I post-strata).
2) Only eligibles were selected in Phase II (i.e., an attempt was made to purge ineligibles from the Phase I frame).

To account for these imperfections, a decision was made to construct error stratum that reflect Phase I post-stratification and the subsequent selection of eligibles, and to supplement the sample in these error strata with a representation of Phase I ineligibles. Specifically, a decision was made to supplement the first-stage sample with 12 facilities ($\doteq \frac{30}{74} \times 30$) that were deemed to be ineligible during Phase I screening. Moreover, 3 of these were randomly selected from the 7 time period 1 ineligibles, and the remaining 9 were similarily selected from the 23 time period 2 ineligibles. The combined non-437 sample of 93 facilities was then post-stratified into 5 error strata according to Table B.18.

c. Summary of Facility Component Error Stratification

Consideration of first-stage sampling activities in support of the Facility Component lead to the construction of 29 error strata (23 reflecting 437 sampling activities and 6 reflecting non-437 sampling activities). Fortunately, no student ineligibility was encountered at the second stage of sampling, and student nonresponse did not result in any error stratum being represented by less than two replicates (here, facilities) on the student analysis files. As such, these 29 error strata and 89[11] replicates allowed precision to be approximated for Facility Questionnaires as well as student-level parameter estimates.

The imposed method of approximating the precision via pseudoreplication is not guaranteed of producing a conservative estimate of error. As such, some caution should be exercised in interpreting the estimated precision. Proceeding in such a fashion does however recognize the exploratory nature of the Facility Component and the priority placed on preserving sample size integrity.

D. Software for Computing Standard Errors

Most estimates of precision were obtained using the program STDERR[12] available in the Statistical Analysis System[13] (SAS) library at RTI. This routine forms the appropriate first-order point estimate of totals and means as well as their estimated precision using the first-order Taylor approximation of the deviation of estimates from the parameter of interest that was described in great detail in subsection B. Type II contrasts on totals and all type I contrasts were carried out by defining an appropriate difference of characteristic values on each analysis unit. Precision of type II mean contrasts were handled for the most part in the ad hoc manner earlier described. For dichotomous reporting group variables, these latter contrasts were directly treated using SESUDAN,[14] and updated version of STDERR. Alternatively, RTI has developed a companion SAS-compatible program to STDERR called SURREGR[15] which computes sampling variances of regression coefficients. By inputing a simple cell (i.e., reporting group) mean model (without intercept), SURREGR

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[11] Four other replicates were nonrespondents and hence were deleted from the sample for student analyses, 16 replicates represented ineligibles whereas analysis of Facility Questionnaires entailed only 14 ineligible replicates.

[12] Shah, B. V. STDERR: Standard Errors Program for Sample Survey Data Research Triangle Park, North Carolina: Research Triangle Institute, 1976.

[13] SAS User's Guide, 1979 Edition. SAS Institute Inc., P.O. Box 10066, Raleigh, North Carolina, 27605.

[14] Shah, B. V. SESUDAN: Standard Errors Program for Computing of Standardized Rates from Sample Survey Data. Research Triangle Park, North Carolina: Research Triangle Instititue, 1979.

[15] Holt, M. M. SURREGR: Standard Errors of Regression Coefficients for Sample Survey Data. Research Triangle Park, North Carolina: Research Triangle Institute, 1977.

Table B.18

ERROR STRATIFICATION FOR NON-437 SAMPLE FACILITIES

Error[e] Strata	Time[d] Period	Post-[d] Strata	Number of Non-437 Sample Members[c]			
			Eligibles	Nonrespondent	P1-ineligibles	P2-ineligibles
24	1	2,3	2	0	1	0
25	1	4	2	0	2	0
26	2,3	5,9	3	1	1	2[a,b]
27	2	6	7	0	3	0
28	2	7	2	0	1	1[b]
29	2	8	8	1	4	1
			24	2	12	4

[a] The time period 3 post-strata sample member was found to be ineligible.

[b] Two facilities (1 in each of error stratum 26 and 28) was a respondent for analysis of facility questionnaires (in which cases, the number of eligibles will be 4 and 3 respectively) but are ineligible for student-level analyses.

[c] For the purposes of error estimation, a sample of 42 non-437 sample facilities were selected. Of these, 12 were augmented from known Phase I ineligibles (denoted P1-ineligibles) and 4 were selected at Phase II and later found to be ineligible (denoted P2-ineligibles). Of the remaining 26 Phase II sample members, 2 refused to respond and 24 provided support for the Facility Component student sample.

[d] Time period and post-strata were defined in Table A.26, (Appendix A) where the latter are identified by subsample number.

[e] Error strata numbers 1-23 were used for the 437 sample members.

will yield the same cell mean point estimates as STDERR except that it will also output the estimated variance of each cell mean and the estimated covariance between these means. As such, the variance of the type II contrasts on means can be computed manually in the obvious fashion. For the most part, this alternative approach was used in making such contrasts on IEP Survey data.

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Appendix C

IEP Evaluation Checklist

IEP EVALUATION CHECKLIST

Form No. . . . . . 1 . . 2
IEP No. ________________

Funding Source . . 1 . . 2 . . 3 . . 4
Rater ________________

1. How many pages are in the IEP? __________

2. Which of the following apply to this IEP?

	(Circle all that apply)
Is typed	1
Is handwritten but easy to read	2
Is handwritten and difficult to read	3
Amount of space provided limits number of annual goals	4
Amount of space provided limits number of short-term objectives	5
Total IEP consists of separate IEPs from different teachers or service sources	6
IEP consists of a "placement" document and an "implementation" document	7

3. For which of the following does the IEP form have a specific heading (A)? For which of the headings has information been entered (B)?

	A Includes Heading	B Information Has Been Entered
Student's age or birthdate	1	1
Student's grade level	2	2
Student's sex	3	3
Student's race	4	4
Student's primary language	5	5
Present level of performance information	6	6
Assessment data to support present level of performance	7	7
Date of the assessment of present level of performance	8	8
Nature of student's handicap	9	9
Student's strengths	10	10
Student's special interests	11	11
Student's school attendance record	12	12

3. (continued)

	A Includes Heading	B Information Has Been Entered
Placement recommendation	.13	.13
Services ("special" or "related") to be provided	.14	.14
Rationale for placement or services	.15	.15
Personnel responsible for services	.16	.16
Date service is to begin	.17	.17
Anticipated duration of service	.18	.18
Recommended extent of participation in regular program	.19	.19
Physical education needs	.20	.20
Date of preparation of IEP	.21	.21
Participants in the IEP process	.22	.22
Signature of individuals who approved the IEP	.23	.23
Titles of individuals who approved the IEP	.24	.24
Parental approval	.25	.25
Results of parental notification	.26	.26
Annual goals	.27	.27
Priority listing of annual goals	.28	.28
Short-term objectives	.29	.29
Recommended instructional materials, resources, strategies, or techniques	.30	.30
Date short-term objectives met	.31	.31
Proposed evaluation criteria	.32	.32
Proposed evaluation procedure	.33	.33
Proposed evaluation schedule	.34	.34
Proposed IEP review date	.35	.35
Actual IEP review date	.36	.36
Results of IEP review	.37	.37
Participants in IEP review	.38	.38
Other ______________________	.39	.39
______________________	.40	.40

4. Which and how many of each of the following were participants in the IEP process (A)? Which and how many of each signed the IEP (B)?

		A	B
		Participated in the Process	Signed the IEP
		(Write in numbers)	
a.	Regular classroom teacher	______	______
b.	Special education teacher	______	______
c.	Physical education teacher	______	______
d.	Speech or language therapist	______	______
e.	Physical or occupational therapist	______	______
f.	Other therapist	______	______
g.	One of the above, but can't tell which	______	______
h.	Qualified LEA representative	______	______
i.	Principal or assistant principal	______	______
j.	School representative	______	______
k.	Supervisor (or facility supervisor)	______	______
l.	Case manager, chairperson, program manager, or program coordinator	______	______
m.	School psychologist or psychometrist	______	______
n.	Counselor	______	______
o.	Social worker	______	______
p.	Nurse	______	______
q.	Parent, guardian, or surrogate	______	______
r.	The student	______	______
s.	Name without noting position	______	______
t.	Other ______________________________	______	______

5. Which of the following is true of the IEP format regarding the provision for parental, guardian, or surrogate approval? Does the IEP show disapproval?

	(Circle one of the first six numbers; circle 7 if appropriate.)
Approval (or disapproval) would be for the entire IEP	1
Approval (or disapproval) would be for annual goals but not for short-term objectives	2
Approval (or disapproval) would be for part but not all of the short-term objectives	3
Approval (or disapproval) would be for services to be provided but not for annual goals or short-term objectives	4
Approval (or disapproval) would be for some portion of the IEP, but cannot determine what would be approved	5
No place for approval or disapproval is provided	6
The IEP was disapproved	7

6. Are present level of functioning (A) and supporting data (B) listed for the following functional areas? In which functional areas is there a statement or a clear indication from the supporting data that special education is needed (C)? In which functional areas is there a statement or a clear indication from the supporting data that special education is not needed (D)? How many annual goals are listed for each functional area (E)? How many annual goals listed for each functional area include a logical statement of expected behavior to a specified standard (F)?

	A	B	C	D	E	F
	Present Level of Functioning Listed	Supporting Data Listed	Special Education Needed	Special Education Not Needed	Number of Goals Listed	Number of Goals That Include a Logical Statement of Expected Behavior to a Specified Standard
1. Reading or oral or written English	1	1	1	1		
a. Oral expression	a	a	a	a		
b. Listening comprehension	b	b	b	b		
c. Written expression	c	c	c	c		
d. Spelling	d	d	d	d		
e. Basic reading skill	e	e	e	e		
f. Reading comprehension	f	f	f	f		
2. Mathematics	2	2	2	2		
a. Mathematics calculation	a	a	a	a		
b. Mathematics reasoning	b	b	b	b		
3. Science	3	3	3	3		
4. Social science	4	4	4	4		
5. General academic	5	5	5	5		
6. Other academic ______	6	6	6	6		
7. Social adaptation	7	7	7	7		
8. Self-help skills	8	8	8	8		
9. Emotional	9	9	9	9		
10. Physical Education	10	10	10	10		
11. Motor skills	11	11	11	11		
a. Gross motor skills	a	a	a	a		
b. Fine motor skills	b	b	b	b		
12. Speech	12	12	12	12		
13. Visual acuity	13	13	13	13		
14. Hearing	14	14	14	14		
15. General Physical Health	15	15	15	15		
16. Vocational/prevocational	16	16	16	16		
a. Career awareness	a	a	a	a		
b. Career exploration	b	b	b	b		
c. Career preparation	c	c	c	c		
17. Other functional ______	17	17	17	17		

7. How many short-term objectives are listed for each functional area (A)? How many short-term objectives listed for each functional area include a logical statement of expected behavior to a specified standard (B)? How many of the objectives clearly are a part of a standard curriculum (C)? How many are intended to be met in the regular classroom (D)?

	A	B	C	D
	Number of Short-Term Objectives	Number of Objectives that Include a Logical Statement of Expected Behavior to a Specified Standard	Number of Objectives That Are Part of an Established Curriculum	Number of Objectives To Be Met In The Regular Classroom
1. Reading or oral or written English				
a. Oral expression				
b. Listening comprehension				
c. Written expression				
d. Spelling				
e. Basic reading skill				
f. Reading comprehension				
2. Mathematics				
a. Mathematics calculation				
b. Mathematics reasoning				
3. Science				
4. Social science				
5. General academic				
6. Other academic ______				
7. Social adaptation				
8. Self-help skills				
9. Emotional				
10. Physical Education				
11. Motor skills				
a. Gross motor skills				
b. Fine motor skills				
12. Speech				
13. Visual acuity				
14. Hearing				
15. General physical health				
16. Vocational/prevocational				
a. Career awareness				
b. Career exploration				
c. Career preparation				
17. Other functional ______				

8. How many short-term objectives are listed that show intended beginning and target completion dates that encompass a time frame that:

a. Begins and ends within the first half of the school year? . . . . ________

b. Begins and ends within the second half of the school year? . . . . ________

c. Extends from the beginning to the end of the school year? . . . . ________

d. Is less than the full school year but begins within the first half of the school year and ends within the second half? . . . . ________

e. Time frame is neither stated nor implied . . . . ________

9. What proportion (or amount) of the student's time is assigned to the special services specified on the IEP? (Include only special services that replace regular instruction.) (Enter "√" if IEP does not give proportion or amount of time.)

________ percent or ________ minutes per week

10. Which of the following related services is the student intended to receive?

(Circle all that apply)

Audiology	1
Counseling	2
Medical services	3
Occupational therapy	4
Parent counseling and training	5
Physical therapy	6
Psychological services	7
Recreation	8
Social work service	9
Transportation	10
Other ________________________________ . .	11

11. Which of the following best describes this IEP's statement of rationale for placement?

(Circle one)

The IEP does not include such a statement 1

There is such a statement, but it does not add to what is already clear from the balance of the IEP 2

There is such a statement, and the statement adds to the information provided by the balance of the IEP 3

12. Which of the following best describes the statement of beginning date(s) of service?

(Circle one)

Is (are) specifically stated 1

May be inferred from dates given for goals or objectives 2

Must be inferred from date IEP was prepared 3

There is insufficient information upon which to base an inference 4

13. Which of the following best describes the statement(s) of duration of services to be provided?

(Circle one)

Is (are) specifically stated 1

May be inferred from dates given for goals or objectives 2

Must be inferred from headings that state that goals are "annual" goals 3

States that services will be provided "as long as needed" 4

There is insufficient information upon which to base an inference 5

14. Which of the following statements best describes the evaluation procedure for the short-term objectives?

(Circle one)

Procedure is clear from the short-term objectives 1

Procedure is precise statements of how the evaluation should be conducted 2

Procedure must be inferred from unclear statements or unclear short-term objectives 3

Procedure cannot be inferred because it is not stated and IEP has no short-term objectives 4

15. Which of the following statements best describes the evaluation schedule for the short-term objectives?

(Circle one)

Schedule is specifically stated as being the evaluation schedule 1

Schedule may be inferred from short-term objectives. 2

Schedule must be inferred from the beginning-of-treatment and end-of-treatment dates 3

Schedule is not stated or implied 4

16. Which of the following statements best describes whether at least an annual evaluation of short-term objectives is required?

(Circle one)

All of the short-term objectives appear to require at least an annual evaluation 1

Some but not all of the short-term objectives appear to require at least an annual evaluation 2

None of the short-term objectives require at least an annual evaluation 3

Such information is not given and cannot be inferred 4

Appendix D

Student Characteristics Questionnaire
and
Data-of-Record Form 4

O.M.B. No. 51-S78035
Approval Expires 30 September 1979

> This study is authorized by law. Although you are not required to respond, your cooperation is needed to make this study comprehensive, accurate, and timely. (20 U.S.C. 1401)

STUDENT CHARACTERISTICS QUESTIONNAIRE

Student ID Number ________________

1. Student descriptive information:

a. Age . . . _____ years

b. Grade . . _____

c. Sex (Circle one)

(1) Male . . 1
(2) Female . 2

d. Race (Circle one)

(1) American Indian or Alaskan Native . 1
(2) Asian or Pacific Islander 2
(3) Black, not Hispanic 3
(4) Hispanic 4
(5) White, not Hispanic 5

2. Please specify, for each type of instructional setting in which this student receives special educational services (Column A), the average number of students in this student's class(es) (Column B), the average number of staff members presenting instruction in this student's class(es) (Column C), and the total number of hours per week of instruction provided to this student (Column D). PLEASE NOTE THAT IF THE STUDENT RECEIVES SPECIAL EDUCATIONAL SERVICES IN MORE THAN ONE OF A PARTICULAR TYPE OF SETTING (E.G., THE STUDENT GOES TO MORE THAN ONE RESOURCE ROOM), COLUMNS B AND C SHOULD LIST THE AVERAGE NUMBERS OF STUDENTS AND STAFF WHILE COLUMN D SHOULD LIST THE TOTAL HOURS PER WEEK.

	A	B	C	D
	Instructional Setting	Average Number of Students in this Student's Class(es)	Average Number of Staff Members, Including Aides, Presenting Instruction in this Student's Class(es)	Total Hours Per Week of Instruction Provided to This Student
a.	Resource room	________	________	________
b.	Self-contained special education class	________	________	________
c.	Regular classroom made up of both handicapped and non-handicapped children	________	________	________
d.	Hospital program	________	________	________
e.	Homebound program	________	________	________
f.	Other (please specify) ______________________________	________	________	________

OVER

DE Form 631,1-79

3. The nature and severity of the student's disability is:

(Circle all that apply)

		EMR	TMR	S/P
a.	Mentally retarded	1	2	3
		Mild	Moderate	Severe
b.	Learning disabled	1	2	3
c.	Emotionally disturbed	1	2	3
d.	Speech impaired	1	2	3
e.	Deaf or hard of hearing	1	2	3
f.	Orthopedically impaired (crippled)	1	2	3
g.	Visually handicapped	1	2	3
h.	Other (specify ____________________)	1	2	3

4. If the student has an IEP, please provide the following information regarding the student's and his/her parents' or guardians' participation in the IEP process?

(Circle one number in each line)

		Yes	No	Don't Know
a.	Did a parent or guardian approve the IEP by signing it?	1	2	3
b.	Did a parent or guardian verbally (in person or by telephone) approve the IEP?	1	2	3
c.	Did a parent or guardian refuse to approve the IEP on the basis of his/her considering it inappropriate?	1	2	3
d.	Did a parent or guardian discuss the completed IEP with a teacher, counselor, or other school representative?	1	2	3
e.	Did a parent or guardian meet with the IEP committee to discuss the developed IEP?	1	2	3
f.	Did a parent or guardian participate in the development of the IEP; that is, did he/she meet with the IEP committee during the development process and provide inputs to the IEP?	1	2	3
g.	Has the student discussed his/her IEP with a teacher, counselor, or other school representative?	1	2	3
h.	Did the student participate in the development of the IEP; that is, did he/she meet with the IEP committee during the development process and provide inputs to the IEP?	1	2	3

Data-of-Record Form 4:
Public School Student Information

Student ID Number ________________

1. The instructional settings in which this student receives special educational services is noted by the teacher in item 2 of the Student Characteristics Questionnaire. For each instructional setting so noted in item 2, determine in your follow-up interview with the teacher whether or not the applicable instructional setting is located in (or for hospital and homebound programs, supervised through) the sampled school. If the student is served in a particular type of setting in both a sampled school and in another school (or schools), so indicate. Use the "not applicable" code for types of settings that do not apply to this student.

(Circle one number on each line)

Instructional Setting	Sampled School	Other School(s)	Both Sampled and Other School(s)	Not Applicable
a. Resource room	1	2	3	4
b. Self-contained special education	1	2	3	4
c. Regular classroom made up of both handicapped and nonhandicapped children	1	2	3	4
d. Hospital program	1	2	3	4
e. Homebound program	1	2	3	4
f. Other (Please specify ____________)	1	2	3	4

Appendix E

School Characteristics Questionnaire
and
Data-of-Record Form 2

O.M.B. No. 51-S78035
Approval Expires 30 September 1979

This study is authorized by law. Although you are not required to respond, your cooperation is needed to make this study comprehensive, accurate, and timely. (20 U.S.C. 1401)

SCHOOL CHARACTERISTICS QUESTIONNAIRE

School ID Number ____________

1. Which of the following best describes this school?

(Circle one)

a. Regular public school 1
b. Special public day school 2
c. Public residential school 3
d. Other (please specify)
____________ 4

2. Which of the following best describes the location of this school?

(Circle one)

a. A small rural or farming community 1
b. A small city or town of under 50,000 that is not a suburb of a city of 50,000 or over 2
c. A city of 50,000-200,000 that is not a suburb of a city of more than 200,000 3
d. The suburb of a city of 50,000-200,000 4
e. A city of 200,000-500,000 that is not a suburb of a city of more than 500,000 5
f. The suburb of a city of 200,000-500,000 6
g. A city of over 500,000 7
h. A suburb of a city of over 500,000 8

3. How many personnel on this school's staff (including any itinerate teachers) are certified in special education? (Express as full-time equivalents.) How many of these are full-time at this school and how many are part-time?

a. ________ (FTE) special education teachers
b. ________ full-time special education teachers
c. ________ part-time special education teachers

OE Form 631,1-79

Data-of-Record Form 2: Public School Information

School ID Number __________

1. Grade range of school: . . . . ________ to ________

   If ungraded, student age range: . . . . ________ to ________

2. Total current school enrollment: . . . . ________

3. The number of handicapped children who were enrolled in the school and receiving special education and related services as of December 1, 1978 (including any handicapped children receiving special education and related services from 89-313 or Regular Title I, and including any handicapped children in the school who received all or a portion of their special education and related services at another school on a pullout basis. ________

4. Complete this item only if there are children in "3" above who do not currently have IEPs.

   a. Approximate number of children in "3" above who do not currently have IEPs. . . . . ________

   b. Enter the approximate percent of these children whose IEP status falls into each of the following categories.

      (1) The school does not intend to prepare an IEP . . . . ________%

      (Reason: ____)

      (2) An IEP will be prepared, but the assessment has not been completed . . . . ________%

      (3) The assessment is complete but a committee has not been set up . . . . ________%

      (4) The committee has started the IEP but has not yet completed it . . . . ________%

      (5) Other (Specify: ____________________________________) . . ________%

(OVER)

(Data of Record Form 2: Public School Information Continued)

5. Complete this item only if there are handicapped children (from "3" above) who are not included in the 94-142 count, but instead are served by Regular Title I, 89-313, or some other funding source.

The (a) funding sources, (b) approximate number of handicapped children served by each source, and (c) approximate number of the children, having IEPs, funded by each source is:

(a)		(b)	(c)
Funding Source	(Circle all that apply)	Number of Handicapped Children Served	Number of Children with IEPs
Regular Title I	1	________	________
89-313	2	________	________
Other (Specify: _____ ______________)	3	________	________

6. Complete this item only if some or all of the children in "3" above currently receive all or a portion of their special education and related service at another school on a pullout basis.

   a. Approximate number of children who currently receive all or part of their special education and related services at another school on a pullout basis. ________

   b. Check the blank if IEPs for these children typically are kept in this school. ☐

Appendix F

School District Characteristics Questionnaire and Data-of-Record Form 1

O.M.B. No. 51-S78035
Approval Expires 30 September 1979

This study is authorized by law. Although you are not required to respond, your cooperation is needed to make this study comprehensive, accurate, and timely. (20 U.S.C. 1401)

SCHOOL DISTRICT CHARACTERISTICS QUESTIONNAIRE

School District ID Number ________________

1. What is the current average annual per-pupil expenditure for this school district? (Include funding from local, state, and federal sources.)

   $________ annual per pupil expenditure for district

2. How many professionals are on the special education staff at the district level? (Express as full-time equivalents.)

   ________ (FTE) special education professional staff

3. Are services for the handicapped provided to students in this school district through intermediate districts or a cooperative arrangement with other districts that have been established for this purpose?

   (Circle one)
   Yes 1
   No 2

   If yes,

   a. How many schools are included in the intermediate or cooperative district?

      ________ schools

   b. How many professional personnel are on the special education staff at the intermediate or cooperative district level? (Express as full-time equivalents.)

      ________ (FTE) professional personnel

4. Are any educational services to any handicapped students in the district contracted by the school district to a private school or institution?

   (Circle one)
   Yes 1
   No 2

   If yes,

   a. How many handicapped students are presently receiving such contracted educational services?

      ________ students

   b. How many of these handicapped students are receiving these contracted educational services outside of the geographic boundaries of this school district?

      ________ students

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Data-of-Record Form 1: School District Information

School District ID Number ______________

1. Indicate below whether or not item 3 on the School District Characteristics Questionnaire has been answered "yes."

(Circle one)
Yes 1
No 2

> If your answer to item 1 above is "yes," obtain (and appropriately record) the information requested in items 2-4 below during your meeting with the school district representative.

2. The number of intermediate districts or cooperative arrangements with other districts through which handicapped students in this school are served is

______________.

3. Indicate whether or not all of the handicapped students who were receiving special education and related services in the district as of December 1, 1978, received these services through an intermediate district(s) or cooperative arrangement with other district(s).

(Circle one)
Yes 1
No 2

4. If a "no" response is circled in item 3 above, indicate below the approximate number of handicapped students, by type of handicapping condition, who were as of December 1, 1978, receiving services through intermediate districts or cooperative arrangements with other districts.

Type of Handicap	Approximate Number of Students Served
a. Mentally retarded	______________
b. Learning disabled	______________
c. Emotionally distrubed	______________
d. Speech impaired	______________
e. Deaf or hard of hearing	______________
f. Orthopedicaly impaired (crippled)	______________
g. Visually handicapped	______________
h. Other (Specify ______________________________)	______________
TOTAL	______________

Appendix G

State/Special Facility Characteristics Questionnaire

and

Data-of-Record Form 3

This questionnaire was approved by O.M.B. with the following title: State Facility Characteristics Questionnaire. This title was modified after O.M.B. approval to more accurately describe the types of facilities for which data were collected.

O.M.B. No. 51-S78035
Approval Expires 30 September 1979

This study is authorized by law. Although you are not required to respond, your cooperation is needed to make this study comprehensive, accurate, and timely. (20 U.S.C. 1401)

STATE/SPECIAL FACILITY CHARACTERISTICS QUESTIONNAIRE

Facility ID Number __________

1. Is this facility:

(Circle one)

a. State operated? 1
b. State supported, but not state operated? 2
c. Other (specify)?
____ . . 3

2. What is the primary purpose of this facility?

(Circle one)

(a) Residential treatment that includes educational services 1
(b) Day care treatment that includes educational services . 2
(c) Day care and residential treatment that includes educational services 3
(d) Educational services only 4
(e) Other (specify ______________________________) . . 5

3. What is the nature and severity of the handicapping conditions of students served?

(Circle all that apply)

	EMR	TMR	S/P
a. Mentally retarded	1	2	3
	Mild	Moderate	Severe
b. Learning disabled	1	2	3
c. Emotionally disturbed	1	2	3
d. Speech impaired	1	2	3
e. Deaf or hard of hearing	1	2	3
f. Orthopedically impaired (crippled)	1	2	3
g. Visually handicapped	1	2	3
h. Other (specify ________________)	1	2	3

4. Please circle all grade levels included in the educational facility.

PreK K 1 2 3 4 5 6 7 8 9 10 11 12

If ungraded, please indicate the age range of the students being served.

Students range from _________ to _________ years of age.

5. What is the current total enrollment in this educational facility?

_________ students

6. Approximately what proportion of the students remain in this program for:

(Write in proportion of students)

a. Less than 3 months? . . . . _________ percent

b. 3 months to 1 year? . . . . _________ percent

c. More than 1 year but not more than 2 years? . . . . _________ percent

d. More than 2 years? . . . . _________ percent

7. Is this educational facility:

(Circle one number in each row.)

		Yes	No
a.	Accredited by the State education agency?	1	2
b.	Supervised by the State education agency?	1	2
c.	A part of, or supervised by, a local public school system?	1	2

8. For what proportion of the students in this educational facility are individualized education plans prepared to meet the requirements of:

(Circle one number in each row)

		None	Some, But Less Than 25%	25-50%	51-75%	More Than 75%
a.	P.L. 94-142?	1	2	3	4	5
b.	P.L. 89-313?	1	2	3	4	5
c.	Title XIX (Intermediate Care Facility/Mentally Retarded)?	1	2	3	4	5
d.	Joint Commission of Accredited Hospitals (JCAH)?	1	2	3	4	5
e.	Vocational Rehabilitation	1	2	3	4	5
f.	Other (please specify) ______________________ .	1	2	3	4	5
g.	______________________ .	1	2	3	4	5

9. Please indicate below the number and certification status of the instructional staff assigned to this educational facility.

a. Total Instructional Staff

______ staff members

b. Total Instructional Staff with Teacher Certification

______ staff members

c. Total Instructional Staff with Certification in Special Education

______ staff members

10. What percentage, if any, of students in this educational facility regularly receive some educational services in a public school setting?

_________ percent

DATA-OF-RECORD FORM 3: STATE/SPECIAL FACILITY INFORMATION

State Facility ID Number ______________

1. The number of handicapped children aged 3-21 who were enrolled in the facility and receiving special education and related services as of December 1, 1978 (including any handicapped children receiving special education and related services from 89-313 or Regular Title I, and including any handicapped children in the facility who received all or a portion of their special education and related services at another school on a pullout basis). __________

2. Complete this item only if there are children in "1" above who do not currently have IEPs.

   a. Number of children in "1" above who do not currently have IEPs. __________

   b. Enter the approximate percent of these children whose IEP status falls into each of the following categories.

      (1) The facility does not intend to prepare an IEP . . . . . . __________%

      (Reason: ____)

      (2) An IEP will be prepared, but the assessment has not been completed . . . . __________%

      (3) The assessment is complete but a committee has not been set up . . . . __________%

      (4) The committee has started the IEP but has not yet completed it . . . . __________%

      (5) Other (Specify: ______________________________) . . __________%

Appendix H

Level 2 Substudy Protocol

Appendix H

Level 2 Substudy Protocol

Following is the sequence of actions to be taken during each LEA site visit by personnel responsible for collecting data for the Level 2 Retrospective Longitudinal Substudy.

1) Make prior contact (or verify that contact has been made) with selected states, districts, and schools in accordance with the procedures established for the Basic Survey.
2) Meet with the school district director of special education and distribute the School District Characteristics Questionnaire. Collect and scan-edit questionnaire before leaving district. NOTE: Prior to conducting the interviews noted in this activity and in Activities 3-7 below, read the following to the interviewee:

> This study is authorized by law. Although you are not required to respond, your cooperation is needed to make this study comprehensive, accurate, and timely. (20 U.S.C. 1401)

Interview district special education coordinator. Secure school district information regarding the following for the current year and, insofar as practical, for the previous year.

a) The procedure by which a student typically is identified as handicapped.
b) How IEPs typically are developed, reviewed, and revised.
c) What role the parent and student typically play in the IEP process.
d) The relationship between resources available for providing special education to handicapped children and resources needed for providing such services (or what, if any, services are needed but are not available).

Following are questions that might be asked to elicit the above information. These questions should, where appropriate, be asked for both the current and the previous year. Note that for this interview and all of the following interviews with other personnel, the questions listed are intended only as general indications of types of questions that might be asked to elicit the required information. The specific questions to be asked will vary considerably depending upon the particular circumstances involved.

a) What is the procedure by which a student typically is identified as handicapped?

b) In approximately what proportion of the cases is this procedure followed?

c) If the typical procedure is used less than 90 percent of the time, what alternative procedures are used?

d) If the typical procedure is used less than 90 percent of the time, what determines that an alternative procedure be used?

e) Typically, how are IEPs developed, reviewed, and revised? (e.g., Is an IEP developed by a committee or developed by a teacher and reviewed by a committee? Does the committee sit together as a committee to review an IEP or does each committee member review it independently? Are IEPs revised more often than annually and, if so, what is the mechanism for revision?)

f) What proportion of handicapped students' parents assist in the development of the students' IEP?

g) What proportion of IEPs receive parental approval? What methods, with what frequency, are used to obtain approval?

h) What proportion of handicapped students participate in the IEP developmental process? What is the nature of their participation?

i) What, if any, services for handicapped children are needed but not available?

3) At each sample school in the district, collect data for the Basic Study and for Level 1 of the Retrospective Longitudinal Substudy following the procedures established for those studies. This includes the following activities:

a) Meet with school principal and distribute the School Characteristics Questionnaire.

b) Select student sample.

c) Collect IEPs and distribute the Student Characteristics Questionnaire.

   - d) Photocopy IEPs.
   - e) Remove personally identifying information from IEPs.
   - f) Collect and scan-edit questionnaires.
   - g) Ship collected materials to RTI.

4) Review Level 2 sample student's IEPs (for the two-year period) and all other data in the student's file related to determination of present level of educational performance and development and implementation of the IEP.

5) Interview sample student's teacher or teachers. Secure information regarding the following for the current year and, insofar as practical, for the previous year.
   - a) Special education and related services that the student actually is/has been receiving.
   - b) Tangible evidence (e.g., student's classroom folder, classroom activity sheets, classroom charts or bulletin board, classroom materials, and other resources) of activities in which the student likely is involved.
   - c) The teacher's perception of any differences between services specified in the student's IEPs and services the student actually is/has been receiving, and reasons for any differences.

   While the interview should be only loosely structured, the following questions are appropriate. During the interviews, every effort must be made by the interviewers to be unobtrusive, temperate, and cooperative, particularly when addressing the issue of differences between requirements listed on the IEP and services actually provided.
   - a) What special education services does this student receive? When? Where? From whom?
   - b) What strategies or methods are being used to meet the annual goals and short-term objectives listed on the IEP?
   - c) Is it practical to visit the student's classroom (where special education services are delivered)?
   - d) Is it practical to see examples of the student's work toward meeting the annual goals and short-term objectives? To see classroom records, materials, etc., that indicate what progress the student is making and what resources are available to him or her?

e) Do the special education services received by the student differ from those listed on the IEP?

f) If so, what are the reasons for the difference?

g) Who developed the student's IEP?

h) How familiar are the student's parents with the student's IEP and special education program?

The teacher interview should be conducted in sufficient depth, and sufficient notes should be taken, to permit the interviewer to document, as soon after the interview as practical, the 32 items of information listed on the following data record forms (Exhibit H.1). Pertinent information from the student's file (from Activity 3 above) also should be used to complete the items. Note that Items 2-14 and 16-21 refer to the student's actual special education program, not to the student's IEP.

6) Interview, as appropriate, the school principal, other school personnel, and/or members of the committee that developed the student's IEP. Secure from the principal any general information regarding the IEP process and resource availability that was not or could not be obtained at the district level. Also, from the principal and/or other school or committee personnel, obtain any required information that could not be obtained from the student's teacher(s) regarding reasons for any difference between the IEP and services actually provided.

7) Interview student's parents or guardian. Wherever practical, to minimize inconvenience to the parents, conduct the parent interviews by telephone. Explain the purpose of the survey, confidentiality of data, etc., to parent. Secure information regarding the following for the current year and, insofar as practical, for the previous year. (Prior to interviewing parents, the interviewer will have determined from school personnel whether or not the child's parents are conversant in English and will have made appropriate arrangements for conducting the interview.)

   a) Nature of parental participation in the IEP process.

   b) Degree that parent is knowledgeable regarding the content of the IEP. If the parent is not fluent in English, what assistance was provided to insure that the parent understood the IEP and his/her rights under the law.

Exhibit H.1
LEVEL 2 SUBSTUDY DATA RECORD FORM

DATA REGARDING SPECIAL EDUCATION SERVICES PROVIDED
(For Current School Year)

Student I.D. __________

1. IEP was developed by:

   a. Teacher who provides the educational service.
   b. Committee.

   If "b," committee personnel and extent of inputs to IEP:

Personnel	Percent of Input
(1)	
(2)	
(3)	
(4)	
(5)	
(6)	
	100%

The Student's Present Level of Educational Performance

2. Name, or one sentence descriptor of each major test, instrument, observation, or examination	3. Approximate date administered (If multiple dates, list latest date prior to development of current IEP)	4. Significant evaluation results

Specific Special Education Services to be Provided to the Student, and Extent of Participation in Regular Program. Projected Date of Initiation and Anticipated Duration of Service.

5. Title(s) and 1-2 sentence descriptor(s) of each placement and any other services including "related services."	6. Date of Initiation of Service	7. Anticipated Duration of Service	8. Extent of Participation (in hours per day and days per week)

9. Amount of time student is assigned to regular education program (in hours per week).

   __________ hours per week

Exhibit H.1 (continued)

	Short-Term Objectives			
10.	11.	12.	13.	14.
Annual goals for the student	The nature of the instructional plan actually used to meet the annual goals (e.g., does teacher use a standardized lesson plan, his/her own documented lesson plan, informal notes, the short-term objectives in the IEP, teaching steps that are committed to memory? If other than or in addition to the IEP, is the actual plan more detailed or less detailed than that indicated by the short-term objectives in the IEP?)	Proportion of short-term objectives for which specific evaluation criteria exists	Proportion of short-term objectives for which evaluation procedures exist	When short-term objectives are (will be) evaluated

15. Summary of statements and opinions regarding reasons for any differences between IEP and actual program.

Exhibit H.1 (continued)

DATA REGARDING SPECIAL EDUCATION SERVICES PROVIDED
(For Prior School Year)

Student I.D. ________

16-19. Specific Special Education Services Provided to the Student, and Extent of Participation in Regular Program. Date of Initiation and Duration of Service

16. Title(s) and 1-2 sentence descriptor(s) of each placement and any other services including "related services."	17. Date of Initiation of Service	18. Duration of Service	19. Extent of Participation (in hours per day and days per week)

20. Amount of time student was assigned to regular education program (in hours per week).

________ hours per week

21. Annual goals for the student.

22. Summary of statements and opinions regarding reasons for any differences between IEP and actual program.

Exhibit H.1 (continued)

DATA REGARDING PARENTAL FAMILIARITY WITH THEIR CHILD'S IEP AND SPECIAL EDUCATION PROGRAM
(From Teacher)

23. Is parent sufficiently conversant in English to understand their child's IEP?

Yes _____ No _____

24. If "no," what steps have been taken to assist parents in understanding the IEP?

25. Is parent aware child is classed as handicapped?

Yes _____ No _____ Don't know _____

26. Is parent aware that child has an IEP?

Yes _____ No _____ Don't know _____

27. If "yes," is parent familiar with the content of their child's IEP?

   a. Yes, thoroughly familiar with content.
   b. Yes, somewhat familiar with content.
   c. Is only vaguely familiar with content.
   d. Is not at all familiar with content.

28. To what extent does parent agree that their child's IEP is appropriate?

   a. Completely agrees with IEP.
   b. Agrees with most of IEP.
   c. Agrees with a small part of IEP.
   d. Completely disagrees with IEP.

29. If "a," "b," or "c," what is the nature of the disagreement?

30. Does parent consider that child is receiving services specified in IEP?

Yes _____ No _____ Doesn't know _____

31. If "no," what services does parent think are not being provided?

32. Summary of any additional information regarding parental perceptions of the child's IEP, services received, or the IEP process:

c) Degree that parent approves of the IEP.

d) The parent's perceptions of and degree of satisfaction with services actually being provided.

While the interview should be only loosely structured, the following questions are appropriate.

a) Are you aware that you child is considered by the school to be handicapped?

b) Are you aware that your child has an individualized education program?

c) If yes, are you familiar with the content of the IEP for your child? What assistance was provided to help you understand the content and intended use of the IEP?

d) If yes, in general terms, what do you see the IEP as consisting of (i.e., what services does the IEP say will be provided to your child? When? Where? How? By whom?)

e) To what extent do you agree with your child's IEP (e.g., do you:

   (1) Completely disagree with the IEP?

   (2) Agree with a small part of the IEP?

   (3) Agree with most of the IEP?

   (4) Completely agree with the IEP?

f) What role did you play in developing and/or approving the IEP? (e.g., Did you participate in the planning meeting? Review the IEP with a school committee? Review the IEP with a teacher or counselor? Sign the IEP as an indication of your approval?)

g) What special education services is your child actually receiving?

h) How satisfied are you with the special services that are being provided?

As soon after the interview as practical, or during the interview if conducted by telephone, document the ten items of information listed on the Parent Interview Summary (Exhibit H.2).

8) Prepare a narrative summary of any site-visit data, impressions, or opinions not already documented on the forms presented above. In particular, include results of the LEA-level interview(s) in this narrative summary.

Exhibit H.2

LEVEL 2 SUBSTUDY PARENT INTERVIEW SUMMARY

PARENT INTERVIEW SUMMARY
(From Parent)

1. Is parent sufficiently conversant in English to understand their child's IEP?

   Yes _____ No _____

2. If "no," what steps have been taken to assist parents in understanding the IEP?

3. Is parent aware child is classed as handicapped?

   Yes _____ No _____ Could not determine _____

4. Is parent aware that child has an IEP?

   Yes _____ No _____

5. If "yes," is parent familiar with the content of their child's IEP?

   a. Yes, thoroughly familiar with content.
   b. Yes, somewhat familiar with content.
   c. Is only vaguely familiar with content.
   d. Is not at all familiar with content.

6. To what extent does parent agree that their child's IEP is appropriate?

   a. Completely agrees with IEP.
   b. Agrees with most of IEP.
   c. Agrees with a small part of IEP.
   d. Completely disagrees with IEP.

7. If "a," "b," or "c," what is the nature of the disagreement?

8. Does parent consider that child is receiving services specified in IEP?

   Yes _____ No _____ Doesn't know _____

9. If "no," what services does parent think are not being provided?

10. Summary of any additional parent information regarding their child's IEP, services received, or the IEP process:

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Appendix I

Sampling Information Protocol

Appendix I

This study is authorized by law. Although you are not required to respond, your cooperation is needed to make this study comprehensive, accurate, and timely. (20 U.S.C. 1401)

INFORMATION REQUIRED FOR SELECTION OF PARTICIPATING SCHOOLS, NATIONAL SURVEY OF IEPs FOR HANDICAPPED CHILDREN

Attached is a list of all public schools in your school district as reported in the Curriculum Information Center file.[1] Those schools classified as "special education" schools are identified by an asterisk "*". What is thought to be the current total enrollment for each school is also listed. To assist Research Triangle Institute (RTI) personnel in selecting the schools from your district that will participate in the National Survey of IEPs for Handicapped Children, answers to the following five questions would be most helpful. An RTI representative will contact you within the next few days and will discuss these questions with you or your designee. Your assistance is greatly appreciated.

1. Is the list of schools (names and addresses) correct? If not, what corrections should be made?
2. Are the grade levels listed for each school correct? If not, what corrections should be made?
3. Is the current enrollment data essentially correct? If not, what corrections should be made?
4. Are the "special education" schools correctly identified? If not, what corrections should be made?
5. If any of the schools are ungraded, what is the age range of students being served at each ungraded school?
6. What is the approximate enrollment of handicapped students (as defined in Section 602 of the Education for All Handicapped Children Act of 1975 [P.L. 94-142]) in each of the schools in the district?

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[1] Curriculum Information Center, Incorporated, 600 Ross Building, 1726 Champa Street, Denver, Colorado, 80202.

Appendix J

Letter from Bureau of Education for the Handicapped to Chief State School Officers

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

Director of Education
Department of Education

Dear

The Bureau of Education for the Handicapped has contracted with the Research Triangle Institute (RTI) to conduct a national survey of the written Individualized Education Program that are required by the Education for All Handicapped Children Act of 1975 (PL 94-142). Section 618(d) of the Act also requires that a national survey describing IEPs be conducted to assist Congress in evaluating the usefulness of these documents. Enclosed is a brief description of the RTI survey. RTI is scheduled to collect data for the survey during the period from January through April 1979. The survey has been coordinated with the Committee on Evaluation and Information Systems (CEIS) and CEIS has approved the instrumentation.

Also enclosed is a list of those Local Education Agencies in your state from which schools will be selected for participation in the survey. This list identifies those LEAs (1) selected only for the basic survey and Level 1 of the Longitudinal Substudy, and those (2) selected for Level 2 of the Longitudinal Substudy (see enclosed study description). A separate sample of state facilities is in the selection process, and you will be informed as to the selection of any such facility(ies) from your state when this process is completed.

I hope you will participate in this important survey. Your assistance in the data collection aspect of this project will insure that this activity is completed successfully and with minimal disruption of normal LEA/school operations. If you would identify a project coordinator, RTI can develop an operating plan in either of these two ways:

Option 1. The state level project coordinator will manage the distribution of informational materials to selected LEAs and coordinate subsequent contacts with those LEAs.

Option 2. The contractor (RTI) after contacting the state coordinator will mail materials directly to LEAs and involve the State Education Agency only as a matter of information.

Assuming that your State Director of Special Education will be the appropriate person to coordinate these activities, an RTI project staff member will contact this individual by telephone during the period December 20-January 5. Should you desire to designate someone other than this individual, or if you have questions, please contact Dr. John Pyecha, RTI Project Director, toll-free (1-800-334-8571), or Dr. Linda Morra, BEH Project Officer, at (202) 472-2535.

Your cooperation in this important study is greatly appreciated.

Sincerely,

Edwin W Martin

Edwin W. Martin
Deputy Commissioner
Bureau of Education for the
  Handicapped

cc: State CEIS Coordinator
    State Director of Special Education

Appendix K

Confirmation Letter to State Education Agency (SEA)

RESEARCH TRIANGLE INSTITUTE
POST OFFICE BOX 12194
RESEARCH TRIANGLE PARK, NORTH CAROLINA 27709

RTI

CENTER FOR EDUCATIONAL RESEARCH AND EVALUATION

27 December 1978

Coordinator of Special Education

Dear

We are pleased that has agreed to participate in the national survey of Individualized Education Programs that is to be conducted by Research Triangle Institute (RTI). The purpose of this letter is to confirm our telephone conversation on December 27, 1978, regarding your choice of options for future contacts with the school districts in your state that have been selected in the national sample.

It is our understanding that it will be most convenient for if mailings and telephone contacts are made directly to sampled districts by representatives of either the Bureau of Education for the Handicapped (BEH) or RTI. In this regard, the first mailing to the superintendent of each selected school district will be a letter from BEH to notify the superintendent of the district's selection into the sample, to provide a brief description of the study, to indicate that state-level support has been received, and to solicit district cooperation. Subsequent mailings and telephone contacts to verify and schedule data collection activities will be made by a representative of RTI. You, as the Project Coordinator for your state, will be informed of the data collection schedule and you will receive information copies of all mailings.

Should any questions or concerns arise during the course of the study, please do not hesitate to call me or the RTI Project Director, Dr. John Pyecha (toll-free, 1-800-334-8571), or Dr. Linda Morra, BEH Project Officer (202-472-2535).

Thanks again for your support. Your cooperation in this important national survey is appreciated, and we will make every effort to minimize any inconvenience to the school systems associated with the data collection effort.

Sincerely,

Wayne Bradburn

Wayne Bradburn
Survey Specialist

WB:ls

cc: Honorable

(919) 541-6000 FROM RALEIGH, DURHAM AND CHAPEL HILL

Appendix L

Local Education Agency (LEA) Contact Letter

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

13 February 1979

The Bureau of Education for the Handicapped has contracted with the Research Triangle Institute (RTI) to conduct a national survey of the written Individualized Education Programs that are required by the Education for All Handicapped Children Act of 1975 (P.L. 94-142). Section 618(d) of the Act also requires that a national survey describing IEPs be conducted to assist Congress in evaluating the usefulness of these documents. Enclosed is a brief description of the RTI Survey. RTI is scheduled to collect data for the survey during the period from January through April 1979.

Your district has been selected for participation in this study. A letter describing the survey and indicating that your district has been selected for participation has been sent from the United States Office of Education to both your Chief State School Officer (CSSO) and State representative of the Committee on Evaluation and Information Systems (CEIS) of the Council of Chief State School Officers.
State Superintendent of Education, has agreed to the State's participation and has appointed Department of Specialized Educational Services, as the contact person for survey activities in the state.

I hope you will participate in this important survey. To facilitate the conduct of survey activities in your district, you are invited to designate your Special Education Director or other such staff member as project coordinator. Your assistance in the data collection aspects of this project will insure that this activity is completed successfully and with minimal disruption of normal LEA/school operations. Within the next few days, an RTI representative will telephone to discuss your participation in the survey. Your participation will consist of the inclusion of a few schools in your district in the national sample of schools. To assist RTI personnel in selecting these sample schools, a minimal amount of information provided by your office would be most helpful. The RTI representative will discuss these needs during this initial contact. Once the sample schools are selected, you will be notified of the selection and the schools will be contacted through your designated district coordinator.

RTI can develop an operating plan for either of the following options. The RTI representative will ask about your preference during the initial telephone contact.

Option 1: The district coordinator will facilitate the study activities by coordinating school contacts and data collection in the sample schools.

Option 2: RTI, after obtaining the required information from your district, will contact those sample schools directly and involve the district only as a matter of information.

We will make every effort to minimize any inconvenience to the schools and school systems associated with the data collection effort. To provide you with a clearer idea of the activities planned for the school district and the schools selected into the sample, three additional items are enclosed: a summary of data collection activities to be undertaken in the sampled schools, a Confidentiality-of-Data Statement, and copies of the three questionnaires to be used. For any further required information regarding the survey or its impact on your school district, please contact the RTI Project Director, Dr. John Pyecha toll-free (1-800-334-8571); or BEH Project Officer, Dr. Linda Morra (1-202-472-2535).

Your cooperation in this important national survey is greatly appreciated.

Sincerely,

(Original signed by Linda Morra)

Dr. Linda Morra
Project Officer
State Program Studies Branch
400 Maryland Avenue, S.W.
Donohoe Building, Room 3145
Washington, D. C. 20202

LM:ls

Enclosures

cc: Department of Specialized Educational Services
Honorable State Superintendent of Education
State Director of Special Education
CEIS Coordinator

Appendix M

Summary Description of the National Survey of Individualized Education Programs[1]

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[1] The list of survey questions included in this summary description subsequently was modified slightly. The revised questions are listed in Table 3.1 of this volume. Also, the title of the State Facility Substudy, which is included in this summary description was subsequently changed to State/Special Facilities Substudy.

Summary Description of the National Survey of Individualized Education Programs

Introduction

Written Individualized Education Programs (IEPs) for all handicapped children are required by the Education For All Handicapped Children Act of 1975 (P.L. 94-142). Section 618(d) of the Act also requires a national survey describing IEPs to assist Congress in evaluating the usefulness of these documents. The Bureau of Education for the Handicapped (BEH), USOE, has contracted with the Research Triangle Institute (RTI) to conduct this survey in early 1979.

The national survey includes a Basic Survey and two substudies: a State Facility Substudy and a Retrospective Longitudinal Substudy. Following is a brief description of the Basic Survey and the substudies. RTI, fully recognizing the importance of maintaining the confidentiality of all collected data, has developed procedures to ensure that the survey will be conducted in compliance with both the Privacy Act of 1974 and the Family Educational Rights and Privacy Act of 1974. Data collection procedures have been carefully planned to ensure that all federal, state, and local requirements are met. No personally identifying information about individual participants will be left on any of the data collected from any school or facility.

Basic Survey

The Basic Survey is intended to provide answers to the following questions:

1) What do IEPs look like?

2) What kinds of information do IEPs contain?

3) How is information presented in IEPs?

4) Who participates in the development and approval of IEPs?

5) What types of special educational and related services are specified in IEPs?

6) In what service settings, and for what proportion of the academic week do students receive the special educational services specified in IEPs?

7) What are the characteristics of the students receiving special educational services in public schools, and of the schools and school districts in which they are enrolled?

8) How do the type, service setting, and amount of special education services specified in IEPs vary by selected student and school characteristics?

9) How do the format, properties, content, and development process of IEPs vary by selected student and school characteristics?

The Basic Survey will involve looking at the IEPs and related information from a national sample of 2,770 public school students from 515 schools in 225 school districts. A trained survey specialist will visit each school in the survey sample to select the student sample and to complete all data collection activities. After selecting the sample of students (and before leaving the school district), the survey specialist will photocopy each sample student's IEP (deleting any personally identifiable information), distribute a School Characteristics Questionnaire to the principal and a Student Characteristics Questionnaire to the teacher most knowledgeable about the student's IEP, collect the completed questionnaires (including a School District Characteristics Questionnaire that has previously been mailed to the school district superintendent), and place a unique ID number on each IEP and questionnaire. This procedure was selected in order to place as little burden as possible on participants. All data will go to RTI for anonymous processing. Each IEP will be coded by applying an IEP Checklist at RTI.

The two-page Student Characteristics Questionnaire will provide information regarding the participants in the development and approval of IEPs, the service settings in which students receive the special educational services specified in IEPs, the proportion of the academic week that students spend receiving these special services, and the characteristics of students receiving the special services. The one-page School Characteristics Questionnaire and the one-page School District Characteristics Questionnaire will provide data regarding the characteristics of the schools and school districts in which the students receiving special education services are enrolled.

State Facility Substudy

The objectives of the State Facility Substudy are similar to the objectives of the Basic Survey except that the focus is on handicapped children in "state facilities" rather than in public elementary or secondary schools. Specifically, the State Facility substudy is intended to provide answers to the following questions:

10) What are the answers to questions 1-6 above for the IEPs of students served in state facilities?

11) What are the characteristics of the students receiving special education services in state facilities and of the facilities in which they are enrolled?

12) How do the type, service setting, and amount of special education services specified in IEPs vary by selected state facility characteristics?

13) How do the format, properties, content, and development process of IEPs vary by selected state facility characteristics?

14) How do the answers to questions 1-6 above for students served in public schools differ from answers to the same questions for students served in state facilities?

The State Facility Substudy will be conducted in conjunction with the Basic Survey by including a sample of 600 students who are served in a total of 75 state facilities (8 students will be selected from each facility). In general, all procedures and schedules for collecting, processing, analyzing, and reporting data for the Basic Survey are applicable to this substudy. The three-page State Facility Characteristics Questionnaire will be used for basically the same purposes as the School and School District Questionnaires: to describe the facilities in the sample, and to determine the existence of significant relationships between state facilities and the properties and content of IEPs and the types of special services being provided.

Retrospective Longitudinal Substudy

A Retrospective Longitudinal Substudy will be conducted at two levels. The first level involves a subsample of 515 of the 2,770 students included in the Basic Survey who have had IEPs prepared for two consecutive school years by schools within the same LEA. This subsample will be obtained by selecting one student at each of the 515 sampled schools. The second level involves a subsample of approximately 55 of the 515 students included in the Level 1 subsample. These 55 students will be selected by taking one student from each of the sample schools in 24 LEAs.

The objective of the Level 1 Substudy is to assess changes occurring from one year to the next in the properties and content of IEPs, the process whereby they were developed, and in the nature and setting of the special services they specify as being provided. That is, the Level 1 Substudy will answer the following question:

15) What is the difference between two consecutive school years in the answers to Basic Survey Questions 1-6 above for the same students?

To answer this question, the IEP from the preceeding year will be collected and analyzed along with the IEP for the current year for each of the students included in the subsample.

The objectives of the Level 2 Substudy are to supplement the information obtained in the Level 1 Substudy with information about the special education and related services actually received by handicapped students and to assess the degree to which the services actually provided coincide with those specified in the IEPs. More specifically, the Level 2 Substudy will provide answers to the following questions:

16) What is the nature of the special education and related services that students in the subsample actually received?

17) How do the special education services actually received by students in the subsample compare to those specified in their IEPs?

18) How knowledgeable are parents (guardians) about the IEPs of their children (wards)?

To answer these questions, the sample students' teachers, parents, and other relevant school personnel will be interviewed for information about the types of services each student received, or is receiving, during the two-year time frame covered by the IEPs. Pertinent information also will be obtained by reviewing each student's school records, and studying his/her current school education program. The education and related services received by each student during the two-year period then will be compared to those services described in his/her IEP. Such findings are important since they provide an indication of the validity of the information obtained from IEPs in the Basic Survey about the type and service setting of the special services received by handicapped students.

Appendix N

Confidentiality of Data Statement

Example of Confidentiality-of-Date Statement

Design of a National Survey of Individualized Education Programs
Research Triangle Institute

Throughout the design of a national survey of Individualized Education Programs (IEPs), the Research Triangle Institute (RTI) will comply with the Privacy Act of 1974 and the Family Educational Rights and Privacy Act of 1974. These two Federal acts, the latter of which is often referred to as the Buckley Amendment, have been enacted to protect the privacy of parents and students with respect to educational records.

Privacy Act of 1974

The General Counsel of HEW, in a memorandum dated May 14, 1976, ruled that record systems developed and maintained by a contractor are not necessarily "systems of records" under the Privacy Act of 1974. The statement is conditional and holds true insofar as, "the contracting agency is interested only in obtaining the results of the research or other work performed under the contract (generally in the form of a report) and does not require the contractor to furnish it (the contracting agency) individually identifiable records from the system established by the contractor . . . ."

The Family Educational Rights and the Privacy Act of 1974 (the Buckley Amendment)

The HEW regulations on privacy rights of parents and students, which implement the Family Educational Rights and the Privacy Act of 1974, provide for certain disclosures of personal information by school districts, without prior consent. Section 99.31, entitled "Prior Consent For Disclosure Not Required," states in part that:

> (a) An educational agency or institution may disclose personally identifiable information from the education records of a student without the written consent of the parent of the student or the eligible student if the disclosure is:
>
> (3) Subject to the conditions set forth in Section 99.35, to authorized representatives of: . . . (iii) The Commissioner, the Director of the National Institute of Education, or the Assistant Secretary for Education, or . . . .

Section 99.35, entitled "Disclosure to Certain Federal and State officials for Federal Program Purposes," specifies as follows the conditions which such disclosures must meet:

> (a) Nothing in Section 438 of the Act or this part shall preclude authorized representatives of officials listed in Section 99.31(a)(3) from having access to student and other records which may be necessary in connection with the audit and evaluation of Federally supported education programs, or in connection with the enforcement of or compliance with the Federal legal requirements which relate to these programs.

(b) Except when the consent of the parent of a student or an eligible student has been obtained under Section 99.30, or when the collection of personally identifiable information is specifically authorized by Federal law, any data collected by officials listed in Section 99.31 (a)(3) shall be protected in a manner which will not permit the personal identification of students and their parents by other than those officials, and personally identifiable data shall be destroyed when no longer needed for such audit, evaluation, or enforcement of or compliance with Federal legal requirements.

RTI Safeguards for Data Confidentiality

In accordance with both the Privacy Act of 1974 and the Buckley Amendment, schools are permitted to disclose, without written consent, personally identifiable information from students' educational records to RTI, an authorized representative of the Secretary of HEW by virtue of its contract with HEW to evaluate IEPs. To meet the provisions of these Acts, RTI will exercise every precaution to protect the identity of every participant, whether student, staff member, school, school district, or individual state. During the data collection process, RTI will maintain their files in terms of Student I.D. numbers. Whenever RTI data gatherers are given access to student files, a record of that access and the purpose will be left in the student's folder. Any identifiable student information (e.g., link between student name and RTI student I.D. number) will be kept in a secure encrypted file, which will be destroyed following data collection. The Department of Health, Education, and Welfare will not have access to any personally identifiable information obtained during the course of this study.

Schools and school districts may thus feel free to cooperate with RTI without fear of violating the provisions of either the Privacy Act of 1974 or the Family Educational Rights and Privacy Act of 1974 (FERPA). These procedures have been worked out in cooperation with appropriate officials in HEW and have been found to meet legislative requirements designed to protect the privacy of study participants.

Specific questions about FERPA should be directed to Mr. William Riley of the Fair Information Practices Staff, 200 Independence Avenue, S.W., Room 526E, Washington, D.C. 20201. Mr. Riley's telephone number is (202) 245-7488. Questions about the Privacy Act may be addressed to Mr. William Wooten in care of the Privacy and Information Rights Staff, 400 Maryland Avenue, S.W., Room 3851, Donohoe Building, Washington, D.C. 20202. Mr. Wooten's telephone number is (202) 472-2655.

Appendix O

Memorandum for the File

A NATIONAL STUDY OF INDIVIDUALIZED EDUCATION PROGRAMS

Memorandum for the File

DATE: ______________________________

SCHOOL: ______________________________

NAME OF STUDENT: ______________________________

On the date indicated above, with the permission of school authorities, and for the purposes indicated below, I consulted the school file of the child named. The child's name and other identifiable information were removed or omitted from any data collected from this school file.

Under contract with the United States Office of Education, the Research Triangle Institute (RTI) is designing a national survey of Individualized Education Programs (IEPs) for handicapped children. As part of this design study, members of the RTI field staff are collecting representative samples of IEPs and collecting child-specific data required to interpret and evaluate the IEPs.

Information about this child will be handled in conformity with all applicable State and Federal privacy laws and regulations, including the Privacy Act of 1974 and the Family Educational Rights and Privacy Act of 1974. Data about individual children, or individual schools, will not be reported to any other individuals or agencies; only nonidentifiable, aggregated information will be reported to the U.S. Office of Education.

Further information about this study may be obtained from the USOE project officer, Dr. Linda Morra (202-472-2535), or from the RTI project director, Dr. John Pyecha (919-541-6314).

____
(Signed)

Representing

The Research Triangle Institute
Post Office Box 12194
Research Triangle Park, NC 27709
Telephone: 919-541-6000

Appendix P

Procedures Followed in Completing IEP Evaluation Checklist

Appendix P

Procedures Followed in Completing IEP Evaluation Checklist

A. Item 1

The coding procedure followed for Item 1 involved a simple page count. If the back of a page was used, it was counted as a separate page. Pages were not counted twice if they were identical to each other in every way (the assumption being that this reflected an error in photocopying). Pages from a referenced standard curriculum or referenced instructional material were not included in the page count. The page numbers recorded on the IEPs themselves were not assumed to be accurate, but were always confirmed through counting.

B. Item 2

1. Response Options 2.1, 2.2, and 2.3

The coding of subitems related to IEP neatness (2.1, 2.2, and 2.3) was primarily based on guided subjective judgements. One and only one of these three options was to be circled. An IEP in which 25 percent or more of the entered information was difficult to read received a code of "3" even when part of it was typed. The code of "3" (difficult to read) did not pertain to the quality of the photocopying, nor to the correctness of the content and style. Rather it was a judgement of legibility. Legibility Sample 1 and Legibility Sample 2 illustrate the qualitative boundary between "sufficiently readable" and "not sufficiently readable."

If the IEP was not coded "3," the choice of codes was dependent upon the proportion of the IEP that was typed. If 50 percent or more of the entered information was typed, "1" was circled. If more than 50 percent of the entered information was handwritten, "2" was circled.

2. Response Options 2.4 and 2.5

The coding for 2.4 and 2.5 (whether or not the amount of space provided by the IEP format limited the number of goals and/or objectives) centered on the question "Would the use of additional page(s) of goals and/or objectives necessitate the re-completion of a major segment of information in order to avoid leaving essential portions of the page blank?" Headings not relating to goals and objectives (e.g., present level of functioning) were considered to provide limits; headings relating to goals and objectives (e.g., SAMPLE 1

Not sufficiently readable; Response option 2.3 should be circled.

Page 1 of 3

INDIVIDUALIZED EDUCATION PROGRAM (IEP)

DATE 5/5/77

1. NAME ______ GRADE 3 BIRTHDATE 7/1/69

ATTENDANCE RECORD Poor HANDICAP Remedial

2. PRESENT LEVEL OF FUNCTIONING Reading WRAT 1.4

Has nice smile. Spelling WRAT 3.0

Poor Study Habits Math WRAT 1.7

Poor Attention Good behavior with adults but poor with peers

3. PLACEMENT COMMITTEE MEMBERS POSITION

Claude Carter District Coordinator

Benjamin Blady Classroom Teacher

Andrew Wright

Ernest Fletcher Teacher

4. PARENT SIGNATURE

I agree with the Individualized Education Program (IEP) for my child.

______

(signature of parent or guardian)

NOTE: All information entered on this exhibit is fictitious.

Sample 1 (continued)

5. EDUCATIONAL SERVICES

A Special Education and/or Support Services Needed	B Starting Date	C Ending Date	D Responsible for Service	E Planned Review Date
Ed. Assessment Plan	1/16	1/10	J. Fletcher	1/11
Eye Examination	2/7			
Counseling				

6. ANNUAL GOALS (Prioritized)

A. Organizing Skills
Attention
Attention span

B. Self Confidence — Self Concept

C. Improve Study Skills by Staying with
Tasks in Reading and Math

Sample 1 (continued)

7. SHORT-TERM OBJECTIVES	8. CRITERIA FOR MASTERY	9. TECHNIQUES AND MATERIALS
sequencing of letters of alphabet	Correctly seq. numerals	
" " " numbers	and letters when shown con- sonants & vowels	Feltboard blocks magnetboard cards dice
putting away the pencil		
relax grip on pencil	will show how to hold pencil	
putting things away without		
being told and then continue	75% of time	
playing with task in seat		
and work until lesson		
is finished		
learn to play basketball		
& baseball – other popular sports	85% of time	Counseling

10. JUSTIFICATION OF PLACEMENT

It will provide least restrictive environment.

11. TIME IN REGULAR PROGRAM

15 % (physical education only)

P.4

Page 183

SAMPLE 2

Sufficiently readable; Response option
2.3 should not be circled.

INDIVIDUALIZED EDUCATION PROGRAM (IEP)

DATE 5/5/77

1. NAME ____________ GRADE 3 BIRTHDATE 7/7/69

ATTENDANCE RECORD poor HANDICAP ____________

2. PRESENT LEVEL OF FUNCTIONING Reading WRAT 1.4
Has a nice smile Spelling WRAT 3.0
Poor study habits Math WRAT 2.7
Poor retention Good behavior with adults but poor with peers

3. PLACEMENT COMMITTEE MEMBERS

PLACEMENT COMMITTEE MEMBERS	POSITION
Pamela Curtis	District Coordinat
Josephine Blakeley	Classroom Teacher
Stephano Wright	
Ernest Fletcher	Teacher

4. PARENT SIGNATURE

I agree with the Individualized Education Program (IEP) for my child.

____
(signature of parent or guardian)

NOTE: All information entered on this exhibit is fictitious.

Sample 2 (continued)

5. EDUCATIONAL SERVICES

A Special Education and/or Support Services Needed	B Starting Date	C Ending Date	D Responsible for Service	E Planned Review Date
EMR Resource Room	11/1	1/1	Fletcher	1/1
Eye Examination	12/2	2/2		
Counseling				

6. ANNUAL GOALS (Prioritized)

A. Academic skills
retention
attention span

B. Self-confidence - Self concept

C. Improve study habit by staying
with tasks in reading and math

Sample 2 (continued)

7. SHORT-TERM OBJECTIVES	8. CRITERIA FOR MASTERY	9. TECHNIQUES AND MATERIALS
recognition and retention of alphabet	Correctly say name of each letter when shown	Blocks, dice
" " " numbers	letters on blackboard	worksheets, cards
putting away when finished		
relax grip on pencil	will know how to hold pencil	
put things away without		
being told more than once	75% of the time	
Stay with tasks in		
reading and math until		
lessons finished		
learn to play basketball + baseball		
More positive self-image	85% of time	Counseling

10. JUSTIFICATION OF PLACEMENT

Will provide least
restrictive environment

11. TIME IN REGULAR PROGRAM

15 % (physical education only)

personnel responsible, evaluation dates, instructional strategies) were not considered to provide limits. Goals were not considered to limit objectives or vice versa. In cases where the IEP included no headings for goals and/or objectives, or where specific subject area headings were part of the IEP format, the IEP was coded as providing a "limit." Exhibit A is an example of an IEP format that limits goals and objectives ("4" and "5" thus would be circled on the checklist); Exhibit B is an example of an IEP format that does not limit goals or objectives.[1]

3. Response Option 2.6

"2.6" was circled when there were two clearly separate, independently complete IEPs for a single student within a single time frame. This code was not applicable when only the pages of goals and/or objectives had been developed independently. Neither Exhibit A nor Exhibit B would have "6" circled.

4. Response Option 2.7

"2.7" was circled only if the IEP was composed of two independently complete documents; one for the sole purpose of recording assessment and placement data (but with no plans for a program) and one for the sole purpose of documenting program planning. Neither Exhibit A nor Exhibit B would have "2.7" circled.

C. Item 3

A very literal approach was taken for the coding of Item 3. A number was circled for a give response option (1-40), if and only if the IEP contained a heading that clearly was intended to collect that particular piece of information; and the corresponding number in Column B was circled if and only if the heading coded in Column A had succeeded in collecting a response that was reasonably appropriate. Only gross inappropriateness was discounted here; quality of response was not at issue (e.g., in Exhibit A.1 there is a heading for "handicap" but the entered response is "remedial." This response does not logically correspond to the heading so 3.B.9 would not be circled). For purposes of this item, information found on the IEP was considered extraneous and was not counted unless it had been deliberately collected by an appropriate heading. Alternate headings were counted in cases where it seemed clear that the same piece of information was being sought as was being sought by the equivalent standard heading. Table 1 provides a partial listing of alternate headings considered to be basically equivalent to the standard ones and of those considered to be non- equivalent. If the IEP included several headings seeking the same piece of information, the appropriate number in Column B was circled even if only one of the headings was filled in. Where there was more than one IEP document for a single child, coding was done based on the sum total of all headings and responses from both documents.

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[1] Exhibits A and B, located at the end of this appendix, provide two examples of IEPs along with correctly coded IEP evaluation checklists.

In Item 3, there were a number of response options concerning dates (e.g., "Date of preparation," "Date service is to begin," and "Proposed review date"). A particular date heading, once coded as serving for one response option, could not then be coded as serving for another. A single heading thus could only be coded one time; the only exception being the case where a pair of date headings (one beginning and one ending) served together as a heading for "duration." In this case the beginning date could be coded as beginning date and also paired with ending date as the heading for "duration."

D. Item 4

Whereas Items 1, 2, and 3 were primarily concerned with IEP format, Items 4 through 16 were not. Thus, for Item 3 in particular, coders were instructed to make few assumptions; to consider only information that was explicitly collected through IEP headings. For Item 4 (regarding participants in the IEP process and signers of the IEP) and the balance of the checklist, coders were instructed to make specified patterns of assumptions where necessary. For example, signatures found on the IEP were coded as qualifying for Item 4 (participants) regardless of whether or not there were headings on the IEP that collected these signatures. The coding procedures for Items 4 through 16, then, were not as literal as those for the preceding three items. If names and titles were listed on the IEP, they were coded as participants in Item 4 unless there was substantial reason to believe that these names were those of implementors rather than of participants in the development of the IEP. People who were specified as being responsible for providing service were not counted as participants unless their participation in the IEP planning was specified. The one exception to this rule was in the case where the program implementor's name was the only name on the IEP document (other than parent). If this was the case, it was assumed that the person(s) thus listed had performed the dual role of writing and implementing the IEP.

Table P.1

ALTERNATE HEADINGS FOR ITEM 3

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
1. Student's Age or Birthdate	Chronological age Date of birth	Grade level Mental age
2. Student's Grade Level	Level	Current assignment Program
3. Student's Sex	Male ____________ Female ___________	Name
4. Student's Race	Ethnic group	
5. Student's Primary Language	Language of home	Language of parents Secondary language

Table P.1 (continued)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
6. Present Level of Performance Information	Functional level Problems Weaknesses Needs	Learning style Cognitive mode
7. Assessment Data	WRAT, WISC (etc.) Baseline data Semester report	Assessment Teacher observation Needs
8. Date of Assessment	Test date Score ________ Date ________	Date of enrollment Date of referral Date of parental permission for testing
9. Handicap	Disability Diagnosis Classification Eligibility Qualifying condition	Physical limitation Problem
10. Strengths	Abilities Normal abilities Subjects where no special education is needed	Positive features of student Student interests

Table P.1 (continued)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
11. Special Interests	Interests	
12. School Attendance Record	Days absent/ Days present	Behavior problems
13. Placement Recommendation	LRE Service location Class placement Speech therapist Recommendation Classification of program Program Primary assignment	Current placement Location
14. Services to be Provided	Services needed Instructional procedure or service Special education needed	Instructional methods
15. Rationale for Placement	Substantiation Reason for assignment Justification	Reason for referral

Table P.1 (continued)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
16. Personnel Responsible	Implementors Staff responsible Facilitator Instructor for program Provider IEP coordinator	Teacher Participant in IEP process
17. Date Service is to Begin	Beginning date for objective Date of implementation Date of program entry (this year)	Objective date Initial program enrollment date Date of IEP Date of program entry (prior years)
18. Anticipated Duration of Services	Begin and end dates (both)	Begin date (only) End date (only) Word "annual"
19. Recommended Extent of Participation	Extent of time in special program Percent time Hours in program Frequency Times per week	Special school placement
20. Physical Education Need	Physical education Special physical education	Physical therapy

Table P.1 (continued)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
21. Date of Preparation of IEP	Conference date Date of staffing Participant list date Date	Date of referral Date of enrollment
22. Participants in IEP Process	Prepared by Approved by (other than parent)	Personnel responsible Teacher Parental approval
23. Signatures of Individuals who Approved	____________ (title) Initials Signatures	Name ____________
24. Titles of Individuals Who Approved	Relationship to child "Principal," "Teacher," etc. (typed in) Titles	Titles of implementors
25. Parental Approval	____________ (parent) Parent signature	Telephone approval Agreement to attend conference

Table P.1 (continued)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
26. Result of Parent Notification	Letter to parent (signed)	Parent contact log Letter to parent (unsigned) Telephone contact
27. Annual Goals	Long-term goals Expected outcomes (broad) Long-term objectives	Year's activities Instructional strategies Short-term goals (very specific)
28. Priority Listing of Annual Goals	(Number in order of priority) Priority order	Numbering of goals
29. Short-Term Objectives	Specific expected outcomes Short-term goals Objectives	Plans Strategies Methods Annual objectives (broad) Long-term objectives
30. Recommended Instructional Materials, Resources, Strategies, Techniques	Suggestions for instruction Implementation Learning style Individualized Instructional Plan	Purposes Goals Objectives Evaluation procedures Criteria

Table P.1 (continued)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
31. Date Short-Term Objectives Met	Date objectives achieved Date objectives mastered Date of completion	End date Proposed end date
32. Proposed Evaluation Criteria	Criteria for mastery	Objective mastered Yes __ No __
33. Proposed Evaluation Procedure	Method of evaluation Evaluation Assessment instrument (re: post-IEP)	Assessment instrument (re: pre-IEP)
34. Proposed Evaluation Schedule	Objective review dates Post-test date Project end date (with objectives) Completion date	Review of IEP Date objective achieved
35. Proposed IEP Review Date	Target scoring date Revision date	Review plan Projected date for mastery of objectives

Table P.1 (continued)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
36. Actual IEP Review Date	Date ________ (with review)	Review for planning IEP Assessment date Objective mastery date
37. Results of IEP Review	Recommendations ________ (with review; following IEP)	Recommendations or review (preceding IEP)
38. Participants in IEP Review	Participants ________ (with other review information following (IEP)	Participants in review (preceding IEP)
39. Other	Program prototype Student schedule Date of referral	
40. Other	Provisions for mainstreaming Last grade obtained	

The distinction between Column A and Column B in Item 4 was based on which of the participants had actually signed the IEP. A participant whose name had been typed or whose name had been written in (e.g., where it was apparent that a single person had written in all listed names) was coded in Column A but not in Column B. To be coded in Column B, it was required that the IEP have the participant's actual signature. No participant could be listed in Column B without also being listed in Column A.

Participants in the IEP process were categorized according to all evidence which could be found on the IEP. However, coders were instructed not to search the IEP for classifications of participants. They were also told not to make assumptions about the category placement of participants, but to select only as specific a category as could be supported by information that actually existed on the IEP (e.g., the last participant listed on Exhibit A would be placed in category "g" as the IEP does not contain a clear statement of specific teacher type). Categories "g," "h," and "t" were the only ones with any degree of latitude, other categories were used only when clearly appropriate. In cases where there were two or more lists on the IEP, all participants were counted, but each particular participant was counted only once (e.g., in Exhibit B there are two lists, but the second list includes only one new name to be coded). Table 2 provides a partial listing of titles considered to be appropriate and titles considered to be inappropriate in each of the response option categories.

E. Item 5

1. Reponse Options 1-5

The coding of Item 5 was based on actual evidence in the IEP as to which portions of the IEP the parent had seen and approved or had been intended to see and approve (as evidenced by the placement of headings). The major source of such evidence was the location of the parent's signature heading on the IEP. For example, if the parental approval heading was located at the end of what appeared to be a complete IEP package, it was concluded that the parent would see and approve the entire package. If the approval heading was located on the front page of what appeared to be a standard length IEP form as indicated by printed page numbers (see Exhibit A for example), or if the printed IEP format made specific reference to further pages/attachments, it was concluded that the parent would see and approve the entire IEP thus

Table P.2

ALTERNATE HEADINGS FOR ITEM 4

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
a. Regular Classroom Teacher	Regular teacher Classroom teacher	Music teacher P.E. teacher Teachers
b. Special Education Teacher	Special education teacher Remedial reading teacher L.D. teacher	Teachers Reading teacher
c. Physical Education Teacher	Physical education teacher	Physical therapy teacher Recreation supervisor
d. Speech or Language Specialist	Speech therapist Reading specialist Speech teacher	Language Arts teacher Reading teacher
e. Physical or Occupational Therapist	Physical therapist Occupational therapist	

Table P.2 (continued

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
f. Other Therapist	Psychotherapist (outside school)	
g. One of the above, but can't tell which	Music teacher Reading teacher Teacher	Speech teacher
h. Qualified LEA Representative	Superintendent Special education coordinator County director District coordinator	Head special education Teacher (school level)
i. Principal or Assistant Principal	Principal Assistant principal	Superintendent Administrator
j. School Representative	School representative Administrative representative	

Table P.2 (continued)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
k. Supervisor (or facility supervisor)	Institution supervisor	Instructional supervisor Recreation supervisor
l. Case Manager	Case manager IEP coordinator Program manager chairperson Program coordinator	Social worker
m. School Psychologist or Psychometrist	Examiner Diagnostician (only if participated in IEP planning; test administration insufficient) Psychologist	Psychiatrist Psychotherapist
n. Counselor	Guidance Counselor School Counselor	
o. Social Worker	Social Service representative	Case manager

Table P.2 (continued)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
p. Nurse	RN LPN School Nurse	Nurse's Aide
q. Parent, Guardian, or Surrogate	Mother Father Grandparent	
r. Student	Pupil (in list with participants)	
s. Name without Noting Position	Participant Committee member Titleless name blank	
t. Other	Physician Director	

represented by printed format. However, if attachments and/or additional pages and forms were not referenced on the signature page or were not unified by printed IEP page numbering, it was concluded that these additional pages were not necessarily included in the IEP at the time it was to be reviewed and signed. The one exception in which a signature heading found on the IEP was not coded as indication of approval (or disapproval) was where the heading for the parent signatures specifically referred to a part of the IEP procedure other than approval/disapproval (e.g., "I agree to attend conference"). If the heading was ambiguous or unspecified as to meaning, it was used for the coding of Item 5. Exhibit A was coded as "1" because of evidence (by way of page numbering) that the IEP had been presented to the parent as a unified whole. Exhibit B was coded "2" because no such unifying evidence existed.

A heading for a parent signature anywhere on the IEP was considered to be a heading for parental approval whether or not the heading spcifically asked for "approval."

2. Response Option 6

The code of "6" was reserved for IEPs where there was no heading for parent signature. The code of "6" could not be used in cases where Item 4, Column A or B, subitem q ("parent, guardian, or surrogate") had been circled.

3. Response Option 7

The code of "7" was assigned where appropriate (e.g., where disapproval of the IEP had been indicated). An IEP receiving the code of "7" was still required to be placed under one response option of response options 1-5. In other words all IEPs coded under "7" for "disapproval" was also coded 1, 2, 3, 4, or 5 based on the location of that "disapproval."

F. Items 6 and 7

Both Items 6 and 7 involved selecting categories of academic or functional areas addressed by the IEP. These two items were considered as integrated and inter-dependent units during the coding process, and coders were asked to maximize the number of category matches between Item 6 and Item 7. For example, if a need was categorized as being "general academic" in Item 6, and this need was carried through the IEP in terms of goals and objectives, the original category of "general academic" was carried through from Item 6 to Item 7. Such matching was done only in those cases where there was clear evidence that the same category introduced as a need in Item 6 was being addressed through the instructional planning represented in Item 6 and Item 7.

In both Items 6 and 7, numbered academic and/or functional areas were considered as being of primary importance. The lettered categories found under certain numbered categories (e.g., subcategories a-f listed under major category 1, Reading or Oral or Written English) were considered to be less critical to the coding than their associated numbered category. In all cases that lettered subcategories were circled, it was required that the numbered category above it also be circled. In cases where there was insufficient information to code subcategories, only the major categories were coded. Table 3 lists some of the entries that were considered acceptable and some of the entries that were considered unacceptable for the various academic and functional areas. These guidelines apply to all ten columns included in Items 6 and 7.

1. Item 6, Column A

Within each of the 17 academic and functional subject areas, various information was coded. The first piece of information for any given subject area was "Present Level of Functioning Listed," and was coded in Column A. Column A was circled for a particular subject area in all cases where the IEP gave some indication as to the student's level of functioning (adequate or inadequate) in that subject area. Statements of "Level of Functioning" were taken from a number of places on the IEP, and were not limited to these responses entered under specific "Level of Performance" headings. Information found under other headings (e.g., "Comments," "Objectives Mastered," "Strengths and Weaknesses," or "Reason for Placement") were coded in their respective subject areas under Column A. Statements such as "needs to improve in reading," "doesn't get along well with other children," or "is emotionally mature for his age," were considered to be appropriate for Column A coding. Statements that pertained only to physical appearance (e.g., "has nice smile" or "physically attractive") were not coded in this column. Column A, then, was concerned primarily with the sum-total of "Present Level" information found on the IEP, not with the IEP format or headings. If a given subject area was coded in Column A, it also was necessary to code that subject in Column C, Column D, or both.

2. Item 6, Column B

Column B was used to collect information regarding actual assessment data found on the IEP (to support the Column A present level of functioning indications) in the subject areas selected for coding under Column A. To be

Table P.3

CATEGORIZATIONS OF ACADEMIC AND FUNCTIONAL AREAS
(ITEMS 6 and 7)

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
1. Reading/Oral/Written English	Composition Listening skills Public speaking Spelling	Penmanship Hearing Attention span Basic speech Alphabet
2. Mathematics	Addition Subtraction	Counting Telling time
3. Science	Rocks Animals	Seasons Telling time Health
4. Social Science	Social studies Geography	Personal adjustment Emotional adjustment History
5. General Academic	Counting Alphabet Recall Attention span Name, address Telling time Seasons	Spelling Handwriting Listening comprehension

Table P.3 (continued

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
6. Other Academic	Art Driver's Education Music Health Home Economics History	Recall Attention
7. Social Adaptation	Accept limits Accept responsibility Attendance problem Self-image Self-confidence Inappropriate response	Biting Self-destructiveness Agression/ violence Nonresponse
8. Self-help	Personal hygiene Use of hearing aid or appliance Self-feeding Dressing Basic (independent) living skills	Home Economics Cooking
9. Emotional	Biting Self-destructiveness Violence Nonresponse	Relating to peers Self-control Positive attitude
10. Physical Education	Basketball Soccer Football Swimming	Coordination Walking

Table P.3 (continued

	ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
11. Motor Skills	Penmanship Coordination Manipulation of objects	Composition Basketball Efficiency
12. Speech	Basic speech Pronounciation Sound production	Public speaking Sound discrimination
13. Visual Acuity	Visual perception Visual-Motor	Naming of objects
14. Hearing	Hearing Sound differentiation	Listening skills Use of hearing aid
15. General Physical Health	Medical data Medications Seizures Diet	Eyeglasses Hearing

Table P.3 (continued

16. Vocational/Prevocational ▷

ACCEPTABLE ALTERNATIVES	UNACCEPTABLE ALTERNATIVES
Career options Career training Career information	Manual dexterity Carpentry

coded in Column B, data was required to be objective (e.g., test scores, formal observations), and to be indicative of either deficiency or adequacy of functioning. Any academic or functional area that was coded under Column B, was required also to be coded under Column A. Broad based tests such as Stanford-Binet, WISC, and PIAT were categorized under the general academic (5) subject area in Column B and were carried over as general academic into later columns including Item 7 columns where possible. For nontest-related assessments to be acceptable for coding under Column B, they were required to be formal, prearranged, and quantifiable (e.g., "gross motor skills equals five months"). Informal teacher observations made during normal class sessions were not considered as supporting data for coding under this column; however, formal observations were counted.

3. Item 6, Column C

All Column A subject areas were coded under Column C where the IEP had indicated that a deficiency (rather than a normalcy or a strength) existed. When the IEP contained no information as to whether an area listed in Column A was one of deficiency or adequacy, deficiency was assumed and that area was coded under Column C. Thus in order not to be coded under Column C, a Column A subject area had to be specified as being an area in which the student was adequate or above. For example, on Exhibit A one area (spelling) was specifically stated as being an area of adequacy and therefore was not coded in Column C. All other functional and academic areas listed in Exhibit A were coded under Column C.

In cases where supporting data were listed on the IEP in terms of grade or age, comparisons were made with stated grade or age in order to determine whether or not a need existed. If no such comparisons were possible, need was assumed. In areas where grade/age comparisons could be made based on information contained in the IEP, any negative discrepancy between actual grade/age and level of functioning grade/age was taken to be a deficiency. In Exhibit B, "psychomotor skills" and "social adaptation" are specified as being adequate and therefore are not coded under Column C, whereas all other level of functioning statements are.

4. Item 6, Column D

To be coded under Column D, information regarding "adequacy" was required to be specified and not implied. Only supportable evidence on the IEP that the student was functioning adequately in a particular functional or academic area was taken as sufficient for Column D coding. In cases where a student was said to have both strength and weakness in a particular subject area, both Column C and Column D were coded (e.g., if the IEP stated that the student needed help in relating to his peers, but that the student got along well with adults, "7" was circled in both Column C and D). Any area coded under Column D was required to also be coded under Column A.

5. Item 6, Column E

The number of annual goals, goals, or long term objectives (or other ambiguous headings that dealt with broad categories of expected outcomes) was entered for the appropriate academic or functional areas under Column E. In those cases where IEP headings were ambiguous, an attempt was made to distinguish between broad categories of expected outcomes and more specific categories of expected outcomes, and to include only the former for coding under Column E.

For purposes of Column E, each distinctive goal on the IEP was counted only once, even in those cases where it appeared more than once. Highly similar goals, that contained small but significant differences, were counted as being separate goals. A single goal statement with more than one distinctive part was counted as the sum total of the parts. For example, in Exhibit A each of the goals listed has two distinct parts, and is thus coded as two separate goals. However, where a goal is broken down into its more specific subgoals, it is counted as a single goal (e.g., "learn the vowels a, e, i, o, u" was counted as a single goal).

Wherever possible, goals were categorized in the same subject areas as had been selected for level of functioning. Matches between Columns A and E were thus maximized where appropriate. All goals were assigned to a numbered category; some goals also were entered in the more specific lettered subcategories, in which case they were required also to be coded under the associated numbered category.

Academic or functional area selection for IEP goals was performed using the same basic guidelines as were listed in Table 3. Coders were asked to be more literal than deductive for this category selection process. Assumptions regarding logical extensions of stated IEP information were discouraged. Thus although it may have seemed reasonable that a goal relating to "retention" may well have had to do with the subject area of "reading," such a deduction was not considered appropriate for area categorization. The correct coding for this "retention" goal was "5," General Academic. Exhibit A lists five goals that are correctly categorized as follows: 3 under General Academic, and 2 under Social Adaptation. These categories are correct based on considerations of cross column matching, as well as on considerations regarding the proper categorization of individual goals.

6. Item 6, Column F

To be coded under Column F, the goal was required to meet three criteria: (1) it was stated behaviorally in terms of what the student would do in order for the goal to be considered to be met; (2) it was stated in terms of criteria for success that would be considered indicative of the student having met or not met the goal; and (3) it was stated in a manner that was judged to be logically consistent. If any of these three criteria were not met, the goal did not qualify for Column F. For example, a goal that stated that the student would "learn to repair an automobile engine" did not qualify for Column F because it was not stated in terms of observable student behavior or of specific criteria indicative of success. If a criteria statement was added to this goal statement, it still would not qualify for Column F unless the result was a statement that was judged to be logically consistent. The statement "learn to repair an automobile engine with 85 percent accuracy" would not be considered to be a logical statement.

In cases where IEP goals were listed on a chart that collected additional information relating to those goals, the sum total of information available was used in judging whether or not the goal qualified for Column F. One goal in Exhibit B would be considered to qualify for Column F. It is listed on a chart as: "learn alphabet." The same chart provides the following supplementary information regarding this goal: "repeat alphabet with no more than one error." Based on these two pieces of information, this goal qualifies for Column F coding as it states the expected behavior and the criterion for success in a manner that is reasonably clear. All other goals under Exhibits A and B do not qualify for Column F coding.

7. Item 7, Column A

Following the same system of categorization as was outlined for Item 6, the coding of Item 7, Column A was conducted as follows. Column A coding included "objectives," short-term objectives," and any objective-like material included under ambiguous headings wherein relatively specific expected outcomes were listed. Objectives were considered to be distinct from goals in that they were more specific, and/or involved a briefer time frame. In cases where the "objective" heading existed, statements listed under this heading were counted as objectives even when they would be more appropriately classified as goals. However, in cases where there were no headings, statements were taken to be objectives if they were not divisible into smaller parts (as opposed to goals if they could be so divided).

The counting of objectives differed from the counting of goals in that, for purposes of counting objectives, additional levels of specificity were considered as constituting additional objectives, whereas such additional levels of specificity were not considered to constitute additional goals. For example, the statement listed earlier, "learn the vowels a, e, i, o, u," was counted as a single goal (if listed as a goal), but as five objectives (if listed as an objective). For purposes of counting the objectives, compound categories also became an important factor. In the case of a compound category connected by the word "and," each possible combination of category and specific entry was counted. For example the objective "will learn to recognize and pronounce the vowels a, e, i, o, u" was counted as a total of 10 objectives; five pertaining to recognition, and five pertaining to pronunciation. In cases where the word "or" connected two categories, each specific entry under these categories was counted only once. For example, the statement "will learn to recognize or pronounce the vowels a, e, i, o, and u" was counted as a total of five objectives.

Wherever possible subject area categories selected in Item 6, Column A (present level of functioning) and Item 6, Column E (goals) were maintained in Item 7, Column A (objectives). This was done even in cases where to do so required the placement of an objective in a less-than-ideal category in order that such a match be accomplished. Thus category placement was considered to be of lesser importance than cross-column relationships in cases where it seemed evident that the IEP had attempted a follow-through of "need" with a matching goal and/or objective. Thus coders were asked to look for evidence on the IEP that an objective had logically followed from a goal and/or that a goal had logically followed from a deficiency in level-of-functioning. Following this rationale, coders were considered justified in moving a "mathematics" objective, for example, from the "mathematics" category to the "general academic" category if by so doing an existing match would be reflected.

In the case that objectives were written in terms referring to an established standard curriculum, the counting and categorizing of those objectives was accomplished by referring to that curriculum (a copy of which was collected during the field task and included with the IEP). The number of objectives that were counted and categorized through use of the standard curriculum also were entered in Column C (Item 7). The Column C totals of objectives taken from a copy of an established curriculum were required to be less than or equal to the totals of objectives coded (for each major academic or functional area) in Column A.

For Exhibit A, the count and placement of objectives in Column A is as follows: 6 objectives in "5," 1 objective in "7," 2 objectives in "8," 2 objectives in "10," and 1 objective in "11." Thus, the total number of objectives for Exhibit A is 12.

8. Item 7, Column B

For an objective to be entered in Column B, it was required to meet the same criteria as was described in the discussion of Item 6, Column F (there pertaining to goals). Thus, objectives listed under Column B were required to (1) state in terms of observable behavior, what the student was required to do in order to be considered to have met the objective, (2) state the standard or criteria by which the student would be judged to have met or not met that objective, and (3) state both the expected behavior and its associated standard (criteria) in a manner that was judged to be logically consistent. Where the objective was stated in terms that were not considered to be observable (e.g., "to know" "to understand") that objective was not considered to qualify for coding under Column B. As with goals, objectives were judged based on the sum total of information provided with the objective. Thus information appearing on a chart with an objective was counted as part of the objective. Exhibit A contains three objectives that qualify for entry in Column B. For each of these three objectives, quality is increased by material that is included with the objective on a chart. The objectives which qualify for Column B are: "recognition and retention of alphabet" (equals two objectives), and "put things away without being told more than once."

9. Item 7, Column C

Objectives were coded under Column A when they were not actually written in the IEP, but instead were references to a copy of a standard curriculum or standard list of objectives. The total number of objectives in each category under this column thus should be less than or equal to the number of objectives assigned to each academic or functional area in Column A; no objective listed in Column C should properly be excluded from Column A.

10. Item 7, Column D

Objectives entered under Column A were also entered under Column D if the IEP provided evidence that those objectives were to be met in the regular classroom. For example, in Exhibit A, the IEP states that physical education will be provided in a regular program setting. Thus the two physical education objectives, basketball and baseball, would qualify for listing under Column D.

G. Item 8

All objectives listed in Item 7 were placed in their respective time frames in Item 8. Thus the total number of objectives in Item 7 and the total number of objectives in Item 8 were required to be equal. The determination of time frame for a given objective was based on its best associated beginning and ending date as stated (or implied) by the IEP. In cases where an IEP included several possible dates by which the beginning and the ending of an objective time frame could be established, the following priority system was established for the selection of the "best" date for this purpose. Chart A and Chart B contain additional information pertaining to the date selection process and the date categorization processes which are further explained below.

The date selection process for beginning date was performed by using the following priority system: (1) use the beginning date of short-term objective, (2) if no objective date, use the beginning date given for the goal with which the objective is associated, (3) if no goal date, use the date services are to begin, (4) if no beginning-of-service date, use the date the IEP was signed or dated, (5) if no IEP date, use the word "annual," (6) if no word "annual," place the objective in Category e.

The selection of a ending date for use in Item 8 was based on the following priority system: (1) use the ending date given for the objective, (2) if no objective ending date, use the ending date given for the goal with which the objective was associated, (3) if no goal date, use the ending date for service to be provided, (4) if no end of service date, use the IEP review

Chart A

SELECTION OF "BEST DATES"

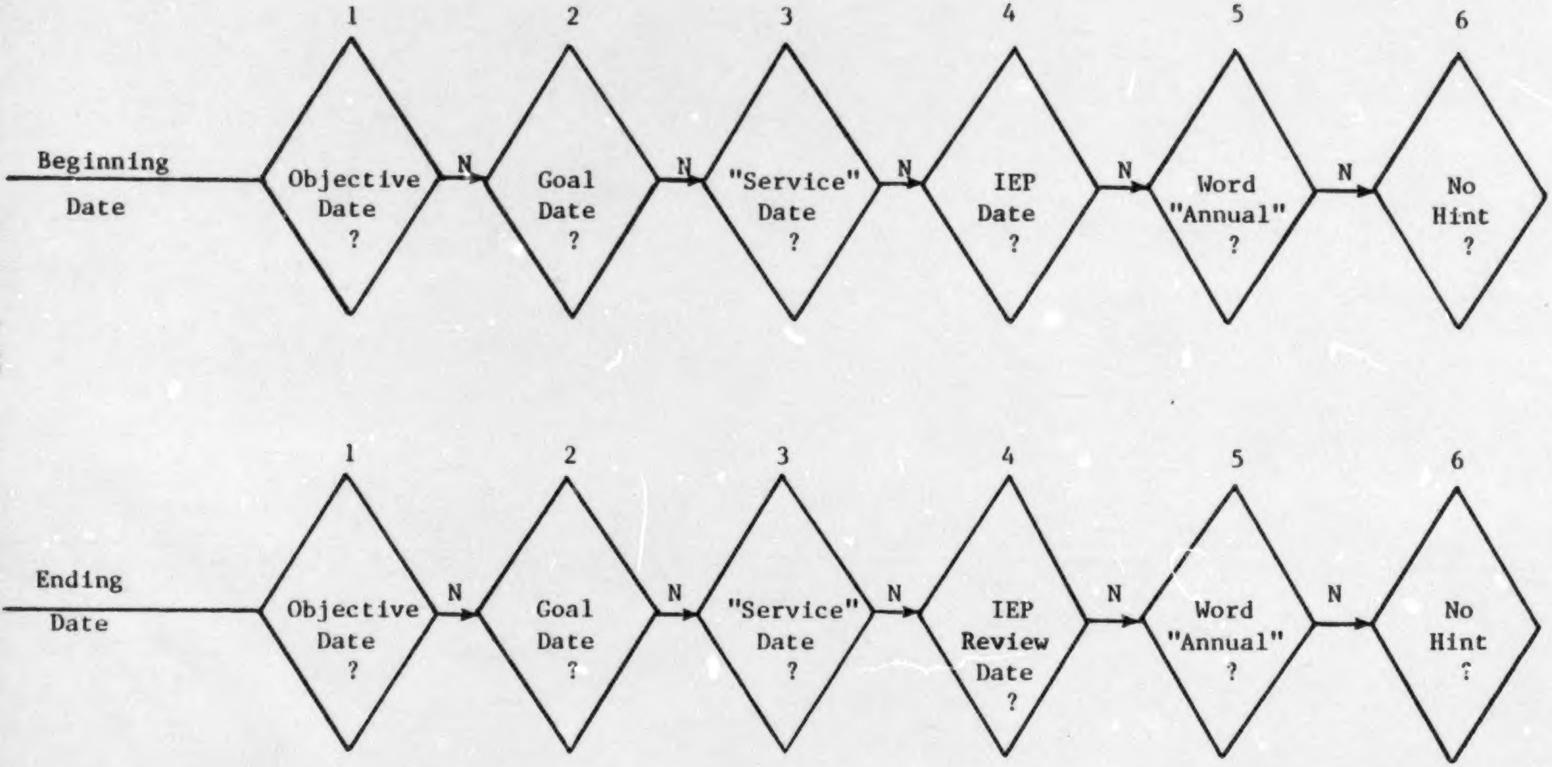
1
2
3
4
5
6
Beginning Date
Objective Date ?
N
Goal Date ?
N
"Service" Date ?
N
IEP Date ?
N
Word "Annual" ?
N
No Hint ?
1
2
3
4
5
6
Ending Date
Objective Date ?
N
Goal Date ?
N
"Service" Date ?
N
IEP Review Date ?
N
Word "Annual" ?
N
No Hint ?

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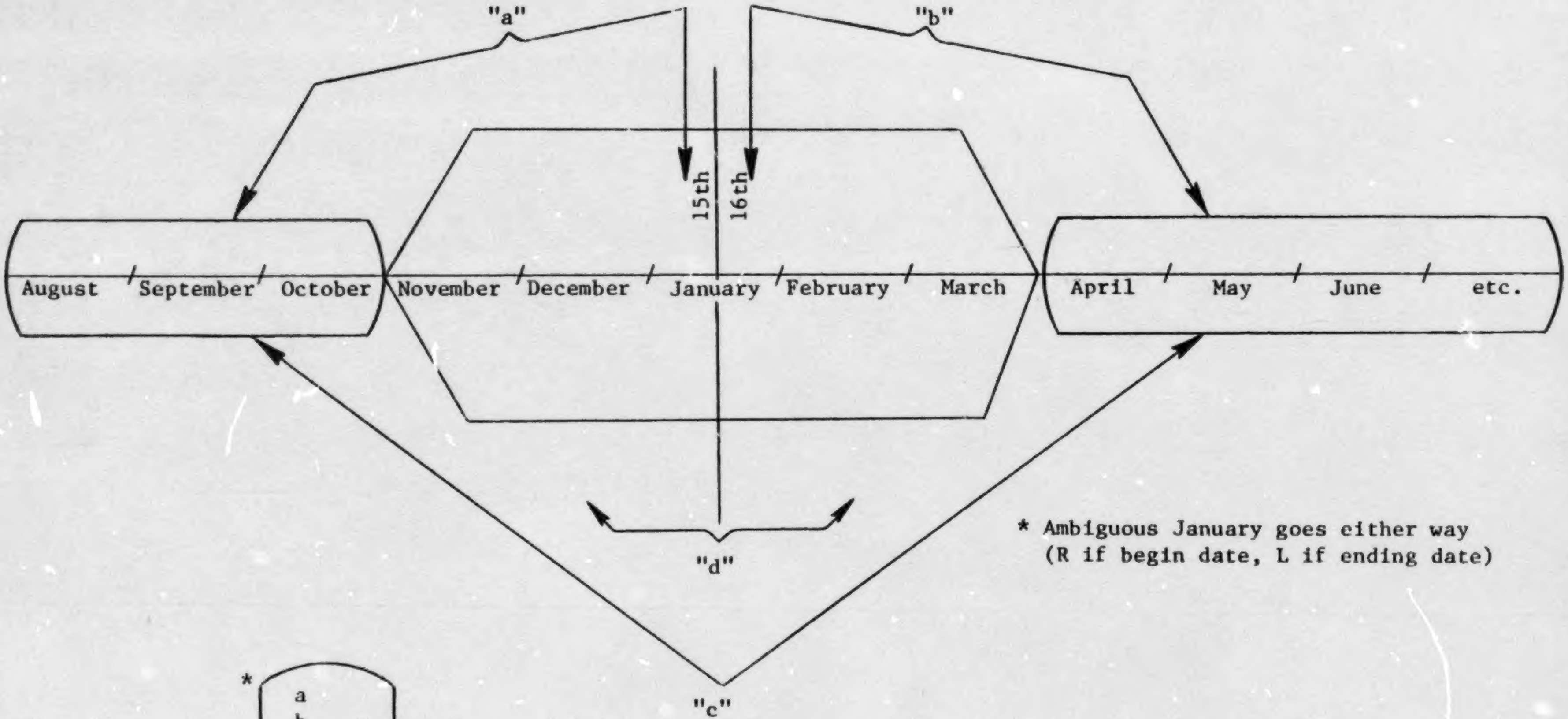
CHART B

DATE CATEGORY DEFINITIONS


"a"
"b"
15th
16th
August
September
October
November
December
January
February
March
April
May
June
etc.
"d"
"c"

* Ambiguous January goes either way
(R if begin date, L if ending date)

TOTAL # OF
OBJECTIVES

*
a
b
c
d
+ e
T_8
$T_8 = T_7$

date, (5) if no IEP review date, use the word annual, (6) if no word annual, list the objective in Category e (see Chart A).

When the best beginning and ending dates on the IEP had been identified, the objective was placed in one of the five time frame categories. Chart B portrays the basic system for this category placement. This system, however, was considered to be sufficiently flexible to provide for placement of objectives in those cases where none of the categories was entirely appropriate. In such cases, efforts were made to select the most appropriate of the available categories.

1. Response Option a

An objective was coded in Category a if the beginning date for that objective fell during the start of the school year (August, September, or October) and if the ending date for that objective occurred before January 16. In Exhibit A all 12 objectives would be coded in Category a.

2. Response Option b

For placement in Category b, the beginning date for the objective was January 16 or thereafter, and the ending date for that objective was at some point before the October start of the next school year.

3. Response Option c

For placement in Category c, the beginning date for the objective was at the beginning of the school year (August, September, or October) and the ending date for the objective was at the end of the school year (April, May, June, or later). Objectives which spanned more than a full year were also included in this category as were objectives whose "best" date was the word "annual."

4. Response Option d

Placement in Category d occurred when the beginning date of the objective was after October and when the ending date for the objective was before April. Any pair of dates located within the six month period between November 1 and March 31 qualified the objective for placement in Category d.

5. Response Option e

Category e was used only in those cases where there existed on the IEP no pair of dates and no word "annual" from which the time frame of the objective could be deduced. .

The mid-point of the school year was taken as being January 15. In cases where the IEP did not state the specific date in January, the date was allocated to the category deemed most appropriate. For example, an objective that spanned from September through January was coded 8.a, and an objective that spanned from January through April was coded 8.b. In cases where no category was ideal, selection was based primarily on the length of time represented. Thus an objective which spanned more than six months was placed in Category c even in those instances where the objective did not begin at the beginning of the school year and end at the end of the school year. An objective that spanned a period of six months or less, and that did not ideally fit either category 8.a, 8.b, or 8.d (due to some irregularity in the overlap of time frames), was placed in the category most representative of the stated time frame for the objective. For example, an objective that spanned from October through February did not strictly fall into either 8.a or 8.d, but was placed in 8.d based on the fact that the majority of the represented time fell in that category.

H. Item 9

The coding of Item 9 was based on whatever evidence the IEP contained as to what proportion (or amount) of time the student was to spend in a special education program. When the IEP contained no such information, a check "√" was entered in Item 9. Wherever possible, however, calculations were made as to approximate time in special education. In the case where the IEP contained information as to time spent in the regular program, calculations were performed based on the subtraction of regular program time from 100 percent or from 1,500 minutes (whichever was appropriate).

In cases where time-in-program was not specified, certain standard calculations and time assumptions were made. A single class was equated to a single hour and was computed at the rate of 50 minutes in an hour. A single day was equated to 300 minutes, and a week was equated to 5 days. Time given in minutes was converted from a 60-minute to a 50-minute hour for the sake of uniformity in calculation. After all appropriate conversions and calculations were made, the total time-in-program (either percent or minutes per week) was entered in Item 9 within the following limits. Percent could not exceed 100, and minutes per week could not exceed 1,500. In cases where minutes per week were calculated to be more than the 1500-minute limit, the number entered in Item 9 was 1500.

In calculating time-in-program for the special schools, there were no special assumptions made regarding the amount of time in the special program. Thus a child in a special school was not automatically coded as being involved in special education 100 percent of the time. With special school IEPs, as well as regular school IEPs, calculations were performed on actual information contained in the IEP.

In those cases where the IEP contained two conflicting pieces of information (e.g., two different percentages of time in special education), the higher amount was entered in Item 8. Ambiguous statements such as "four times per week" were computed as four sessions lasting one 50-minute hour each (or 200 minutes per week). In all cases where Column B was circled on Item 3.19, some entry other than "√" was required on Item 9.

The time calculated for Item 9 was based on time in special service only, and did not include time in related service. For purposes of this distinction "special education service" was taken to be activities that replaced regular instruction. "Related services" was taken to be activities that fell outside both the regular instructional program and the special instructional program replacing it (all or part).

I. Item 10

Services that did not qualify for coding in Item 9 due to the fact that they did not replace "regular instruction," were coded in Item 10. The services of interest for this item were those which involved supplementary developmental, corrective, and supportive services provided the student in order to increase the benefit from the special education program that had been planned and was being provided. For example, "eye examination" (found in Exhibit A) was considered to be a "related service" and was coded as 10.3. An item such as "language therapy" was generally considered to be part of the time in the school program ("special education service") and thus was not coded as a "related service." Counseling that took place as part of the educational program was coded as a "special education service," (Item 9), whereas counseling which took place outside of both the regular and special educational program was coded as a "related service" (Item 10).

Evaluation proceedings on which the IEP was based (e.g., present-level-of-functioning assessment activities) were not coded under Item 10. Interim assessments and psychological services that logically could not be considered a part of the IEP were coded in 10.7.

J. Item 11

The coding of Item 11 involved judgment as to whether or not the IEP contained a statement of the rationale for placement. For purposes of this item, it was not considered to be necessary for the IEP to have a heading for this information. Thus the relationship between Item 11 and Item 3.15 ("rationale for placement or services") was not a reciprocal one. If Item 3.15, Column B was circled it was required that 11.1 ("no statement") not be circled. Thus if some form of rationale for placement was found during the coding of Item 3, this was considered sufficient to qualify the IEP for the circling of either 11.2 or 11.3. However, the fact that Item 3.15 Column B was not circled (indicating there was no information entered under the heading for rationale for placement), did not necessarily mean that it contained no rationale statement usable in Item 11. Of primary consideration for this item was what information could be found in the IEP, and not what headings had been provided by the IEP format.

If the IEP contained no rationale statement, 11.1 was circled. If the IEP contained some statement of rationale, a judgment was made as to whether that statement did or did not add to the balance of the IEP. Statements that were obvious or irrelevant were judged to add nothing to the balance of the IEP and were coded 11.2. The rationale statement found in Exhibit A provides an example of such a statement. Statements that provided some piece of information not otherwise contained in the IEP qualified the IEP for a code of 11.3. The statement of rationale found in Exhibit B discusses the student's need for individual attention and the expectation that this need would be provided for through the recommended placement. This is considered to add information to the balance of the IEP and thus qualifies to be coded as 11.3. Other examples of comments that would be coded 11.3 are: "decreased student-teacher ratios," "special needed facilities," and "specialists and/or program qualities necessary." Rationale statements that merely state "need" were not considered to qualify the IEP for coding under 11.3.

K. Item 12

Item 12 was coded based on the highest rating that could be supported by evidence in the IEP. Categories 1 through 4 on Item 12 are in descending order by quality. Thus the IEP with higher quality information received a lower code number for this item. Dates were considered to be sufficiently specific for this item even if given only in terms of months and not month/day.

In order to qualify for 12.1, the IEP was required to have some global statement of beginning date(s) of service. In cases where "beginning date" was linked to objectives (e.g., by way of a chart) the beginning date information was not considered to be global and thus did not qualify the IEP for coding under 12.1.

In cases where an IEP listed a date within the time scope of the IEP under a heading such as "enrollment date," this was taken to be a "beginning of service" date and was considered to be acceptable for coding under 12.1. However, when a similar heading contained an entry that fell at some point outside the time scope of the IEP, this was not taken to be an appropriate substitution for beginning date, and was not used for purposes of coding Item 12. This required that other dates on the IEP be used.

A code of 12.2 was circled in those cases where at least one date that was given with goals or objectives was clearly a date specifying when work on the goal or objective would begin. For purposes of this response, other goal/objective-related dates were disregarded (e.g., those that pertained to when the objective would be mastered, when evaluation of the objective would take place, or when the objective was expected to be completed). The wording (or even the presence) of headings requesting the beginning dates for goals and objectives was not considered to be of primary importance for the purposes of this item. The main consideration was whether or not the date listed with the goal or objective clearly pertained to the beginning of work on that goal or objective. All dates providing such information were considered sufficient for a code of 12.2.

Category 12.3 was used in all cases where there was some "inferior" means whereby it was possible to deduce the beginning of IEP service. An IEP qualified for 12.3 even in cases where the only date applicable to the issue of beginning of services was a date such as the date of the IEP, the date of participants' signatures, the word "annual," or the specification of a year span (such as 1978-79). If the IEP's objectives had been coded as falling within some time span on Item 8.A, 8.B, 8.C, or 8.D, it was required that the IEP be assigned a code on Item 12 reflecting that there had been some source of information on the IEP from which beginning date could be deduced (e.g., either 12.1, 12.2, or 12.3 was circled).

The code of 12.4 was reserved for those cases where the IEP contained no possible source from which beginning date of service could be deduced. In any instance where 3.17.B (date services to begin) was circled in Item 3, the code of 12.4 could not be used for Item 12.

L. Item 13

As with Item 12, Item 13 was coded by selecting the highest rating that could be supported by evidence found on the IEP. Again the code choices were in descending order, and a lower number code indicated a higher quality of duration date information. For purposes of this item, duration information could be expressed in two possible ways. First, it could be stated as a span of time (e.g., two months), and second it could be stated in terms of a pair of dates (beginning date and ending date).

1. Response Option 13.1

To qualify for a code of 13.1, a global statement regarding the entire IEP was considered necessary. Specific information as to duration of individual goals or objectives was not counted for 13.1. A year span such as 1978-1979 was accepted as a global statement of duration only if it was specified as such (e.g., by a heading such as "Duration of Services"). In Exhibit A, the duration of services was stated specifically in terms of a start and an end date, and thus was coded as a 13.1.

2. Response Option 13.2

An IEP qualified for the code of 13.2 in any case where the goals or objectives were directly linked to dates that clearly delineated the duration. The wording (e.g., the existence of specific headings) used to collect this information was not considered to be of primary importance for purposes of this item, and thus all relevant information (with or without headings) was used regardless of where it appeared on the IEP. In Exhibit B, starting date and ending dates are listed on a chart with the goals and objectives, and thus would be coded 13.2.

3. Response Option 13.3

The code of 13.3 was used in those cases where the IEP contained any other source of duration information. This information could be in any form including a date of the IEP plus an IEP review date, the word "annual," or a year span such as 1978-79. It was not necessary that there be a heading that stated that such information pertained to duration of service.

4. Response Option 13.4

The code of 13.4 was used for a specific type of IEP duration statement wherein the IEP did not specify a particular end point to services, but rather stated that services would continue "as long as needed." This was a code reserved for cases where the "as long as needed" statement created the appearance that services could continue indefinitely because the IEP had no accompanying statement regarding a planned end point. If the IEP contained an ending statement as well as an "as long as needed" statement, it was not coded as 13.4 but instead was coded 13.1, 13.2, or 13.3 as appropriate.

5. Response Option 13.5

The code of 13.5 was reserved for those IEPs that included no information through which duration of services could be deduced and no statement of "as long as needed." If a time frame for objectives was specified under Item 8, it was required that Item 13 be coded as something other than 13.5. Also in those cases where Column B was circled on Item 3.18, the IEP was considered to have some possible source of duration information, and was not to be coded as a 13.5.

M. Item 14

The "evaluation" referred to by Item 14 was that which was planned for use to determine whether or not IEP objectives had been met, and was not the evaluation used to recommend placement for the student (e.g., level of functioning data). Thus, a heading of "evaluation" was used for this item only in those cases where the response clearly pertained to the evaluation that would follow or be included in the special education program rather than to the evaluation that had preceeded it.

1. Response Option 14.1

An IEP qualified for coding under 14.1 in those cases where the short-term objectives provided or were linked with a statement that specifically and clearly indicated how the student's success in achieving that objective would be evaluated. An IEP wherein more than one half of the objectives were judged to be "A logical statement of expected behavior to an acceptable standard" (as seen by the percentage of objectives that qualified for Item 7, Column B) was considered to qualify for a code of 14.1. Thus, for purposes of this item, clearly stated objectives were seen to give clear indication as to evaluation procedure.

2. Response Option 14.2

The code of 14.2 was used in those cases where the IEP could not be coded as 14.1 and where it included a specific statement as to what evaluation procedure would be used to determine student success in accomplishing stated objectives (where such a statement was not linked in a one-to-one relationship with the individual objectives). In order to qualify for 14.2 (rather than 14.3) the statement of evaluation was required to be one that was classifiable as being "precise." This was taken to mean that the statement must be sufficiently clear that a person unfamiliar with the student would know from reading the evaluation procedure statement precisely how to perform the evaluation therein recommended. For example, the statement "readminister the Goldman-Fristoe Test of Articulation" would be taken as a sufficiently precise directive to qualify for coding under 14.2.

3. Response Option 14.3

The code of 14.3 was used in all cases where the IEP could not be coded 14.1 or 14.2, but where it included any quality objective or any quality evaluation procedure statement for evaluating the stated objectives, regardless of how minimal that quality was. For this code there were no standards of specificity, relevance, or clarity. Thus any procedure statement or any short-term objective was considered as sufficient for some type of deduction as to how the evaluation of the IEP objectives would be conducted. Exhibit A, for example, does not include a predominance of clear objectives, but does include some objectives nonetheless. It would thus be coded as a 14.3 under this item.

4. Response Option 14.4

This code was reserved for IEPs on which there were no evaluation procedure statements and no short-term objectives from which could be deduced any hint as to how the evaluation would be conducted. It was considered inappropriate to circle 14.4 in those cases where Item 3.29.B or 3.33.B had been circled, or where at least one objective had been entered in Column A of Item 7. An IEP which contained no objectives (on Item 7) received an automatic code of 14.4.

N. Item 15

The coding choices for Item 15 were in descending order. The coding procedure was to select the highest code rank (or lowest number) that could be supported by evidence found in the IEP.

1. Response Option 15.1

To be coded 15.1, an IEP was required to have a list of dates which was clearly intended to be an evaluation schedule for the IEP objectives. This list of dates was sometimes called an "evaluation schedule" by a heading on the IEP. It sometimes appeared as being separate from the objectives and sometimes appeared on a chart accompanying the objectives. In cases where the IEP objectives were on a chart and were linked one to one with dates that were specified as being evaluation dates or review dates (here referring to review date of objective and not review date of IEP) the code of 15.1 was used. A series of dates listed under a heading such as "progress reports" was also acceptable for a 15.1 code.

2. Response Option 15.2

An IEP could qualify for a code of 15.2 in cases where the date(s) recorded with the short-term objective(s) were called something other than "evaluation schedule" or "review of objectives." Examples of other types of headings that were found with objective(s) and were considered to qualify for 15.2 coding were: "end date of objective," "expected mastery date," and "date objective to be completed." A code of 15.2 could be used even in cases where only a single date was recorded with the objective(s). Objective time frames defined by the headings of the IEP (e.g., three month objectives) were accepted as adequate for 15.2 coding.

3. Response Option 15.3

In the case that there were no date(s) included with the short-term objective(s), or where those date(s) included were seen to pertain to the beginning of work on the objective(s) and not to the end (or evaluation) of work on objective(s), the IEP was searched for less ideal dates from which an evaluation schedule could be deduced. For all IEPs having at least one objective listed in Item 7, the existence of any date indicative of IEP duration (Item 13.1, 13.2, or 13.3) was of sufficient quality to qualify the IEP for 15.3 coding. Dates such as "IEP review date," "end of service date," or even the word "annual" were sufficient for the code of 15.3. However, these dates were usable only in conjunction with the IEP objective(s). In cases where the IEP included no objective(s), such dates were not considered usable, and a code of 15.4 was entered.

4. Response Option 15.4

The 15.4 code was used in cases where there were no IEP objectives to be considered in conjunction with dates from which an evaluation schedule

Exhibit A

EXHIBIT A

INDIVIDUALIZED EDUCATION PROGRAM (IEP)

DATE ________________

1. NAME [redacted] GRADE ______ BIRTHDATE ________________

ATTENDANCE RECORD ________________ HANDICAP ________________

2. PRESENT LEVEL OF FUNCTIONING ________________

3. PLACEMENT COMMITTEE MEMBERS POSITION

4. PARENT SIGNATURE

I agree with the Individualized Education Program (IEP) for my child.

[redacted]
(signature of parent or guardian)

NOTE: All information entered on this exhibit is fictitious.

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5. EDUCATIONAL SERVICES

A Special Education and/or Support Services Needed	B Starting Date	C Ending Date	D Responsible for Service	E Planned Review Date

6. ANNUAL GOALS (Prioritized)

A.

B.

C.

7. SHORT-TERM OBJECTIVES	8. CRITERIA FOR MASTERY	9. TECHNIQUES AND MATERIALS

10. JUSTIFICATION OF PLACEMENT

11. TIME IN REGULAR PROGRAM

____%

IEP EVALUATION CHECKLIST

Form No. . . . . . . 1 . . 2 IEP No. *Exhibit A*

Funding Source . . 1 . . 2 . . 3 . . 4 Rater ______________

1. How many pages are in the IEP? 3

2. Which of the following apply to this IEP?

(Circle all that apply)

Is typed 1

Is handwritten but easy to read . . . . [✓ 2]

Is handwritten and difficult to read 3

Amount of space provided limits number of annual goals . . . . . [✓ 4]

Amount of space provided limits number of short-term objectives . . . . [✓ 5]

Total IEP consists of separate IEPs from different teachers or service sources 6

IEP consists of a "placement" document and an "implementation" document 7

3. For which of the following does the IEP form have a specific heading (A)? For which of the headings has information been entered (B)?

	A Includes Heading	B Information Has Been Entered
Student's age or birthdate	[✓ 1]	[✓ 1]
Student's grade level	[✓ 2]	[✓ 2]
Student's sex	3	3
Student's race	4	4
Student's primary language	5	5
Present level of performance information	[✓ 6]	[✓ 6]
Assessment data to support present level of performance	7	7
Date of the assessment of present level of performance	8	8
Nature of student's handicap	[✓ 9]	9
Student's strengths	10	10
Student's special interests	11	11
Student's school attendance record	[✓ 12]	[✓ 12]

3. (continued)

	A Includes Heading	B Information Has Been Entered
Placement recommendation	13	13
Services ("special" or "related") to be provided	[✓ 14]	[✓ 14]
Rationale for placement or services	[✓ 15]	[✓ 15]
Personnel responsible for services	[✓ 16]	[✓ 16]
Date service is to begin	[✓ 17]	[✓ 17]
Anticipated duration of service	[✓ 18]	[✓ 18]
Recommended extent of participation in regular program	[✓ 19]	[✓ 19]
Physical education needs	20	20
Date of preparation of IEP	[✓ 21]	[✓ 21]
Participants in the IEP process	[✓ 22]	[✓ 22]
Signature of individuals who approved the IEP	23	23
Titles of individuals who approved the IEP	[✓ 24]	[✓ 24]
Parental approval	[✓ 25]	[✓ 25]
Results of parental notification	26	26
Annual goals	[✓ 27]	[✓ 27]
Priority listing of annual goals	[✓ 28]	[✓ 28]
Short-term objectives	[✓ 29]	[✓ 29]
Recommended instructional materials, resources, strategies, or techniques	[✓ 30]	[✓ 30]
Date short-term objectives met	31	31
Proposed evaluation criteria	[✓ 32]	[✓ 32]
Proposed evaluation procedure	33	33
Proposed evaluation schedule	34	34
Proposed IEP review date	[✓ 35]	[✓ 35]
Actual IEP review date	36	36
Results of IEP review	37	37
Participants in IEP review	38	38
Other ____________________	39	39
____________________	40	40

4. Which and how many of each of the following were participants in the IEP process (A)? Which and how many of each signed the IEP (B)?

		A	B
		Participated in the Process	Signed the IEP
		(Write in numbers)	
a.	Regular classroom teacher	1	1
b.	Special education teacher		
c.	Physical education teacher		
d.	Speech or language therapist		
e.	Physical or occupational therapist		
f.	Other therapist		
g.	One of the above, but can't tell which	1	1
h.	Qualified LEA representative	1	1
i.	Principal or assistant principal		
j.	School representative		
k.	Supervisor (or facility supervisor)		
l.	Case manager, chairperson, program manager, or program coordinator		
m.	School psychologist or psychometrist		
n.	Counselor		
o.	Social worker		
p.	Nurse		
q.	Parent, guardian, or surrogate	1	1
r.	The student		
s.	Name without noting position	1	
t.	Other ______________________________		

5. Which of the following is true of the IEP format regarding the provision for parental, guardian, or surrogate approval? Does the IEP show disapproval?

(Circle one of the first six numbers; circle 7 if appropriate.)

Approval (or disapproval) would be for the entire IEP . . . . . . [✓ 1]

Approval (or disapproval) would be for annual goals but not for short-term objectives 2

Approval (or disapproval) would be for part but not all of the short-term objectives. 3

Approval (or disapproval) would be for services to be provided but not for annual goals or short-term objectives . . . 4

Approval (or disapproval) would be for some portion of the IEP, but cannot determine what would be approved. 5

No place for approval or disapproval is provided. 6

The IEP was disapproved 7

6. **Are present level of functioning (A) and supporting data (B) listed for the following functional areas? In which functional areas is there a statement or a clear indication from the supporting data that special education is needed (C)? In which functional areas is there a statement or a clear indication from the supporting data that special education is not needed (D)? How many annual goals are listed for each functional area (E)? How many annual goals listed for each functional area include a logical statement of expected behavior to a specified standard (F)?**

	A	B	C	D	E	F
	Present Level of Functioning Listed	Supporting Data Listed	Special Education Needed	Special Education Not Needed	Number of Goals Listed	Number of Goals That Include a Logical Statement of Expected Behavior to a Specified Standard
1. Reading or oral or written English	[✓ 1]	[✓ 1]	[✓ 1]	[✓ 1]		
a. Oral expression	a	a	a	a		
b. Listening comprehension	b	b	b	b		
c. Written expression	c	c	c	c		
d. Spelling	[✓ d]	[✓ d]	d	[✓ d]		
e. Basic reading skill	e	e	e	e		
f. Reading comprehension	f	f	f	f		
2. Mathematics	[✓ 2]	[✓ 2]	[✓ 2]	2		
a. Mathematics calculation	a	a	a	a		
b. Mathematics reasoning	b	b	b	b		
3. Science	3	3	3	3		
4. Social science	4	4	4	4		
5. General academic	[✓ 5]	5	[✓ 5]	5	3	
6. Other academic ______	6	6	6	6		
7. Social adaptation	[✓ 7]	7	[✓ 7]	[✓ 7]	2	
8. Self-help skills	8	8	8	8		
9. Emotional	9	9	9	9		
10. Physical Education	10	10	10	10		
11. Motor skills	11	11	11	11		
a. Gross motor skills	a	a	a	a		
b. Fine motor skills	b	b	b	b		
12. Speech	12	12	12	12		
13. Visual acuity	13	13	13	13		
14. Hearing	14	14	14	14		
15. General Physical Health	15	15	15	15		
16. Vocational/prevocational	16	16	16	16		
a. Career awareness	a	a	a	a		
b. Career exploration	b	b	b	b		
c. Career preparation	c	c	c	c		
17. Other functional ______	17	17	17	17		

7. How many short-term objectives are listed for each functional area (A)? How many short-term objectives listed for each functional area include a logical statement of expected behavior to a specified standard (B)? How many of the objectives clearly are a part of a standard curriculum (C)? How many are intended to be met in the regular classroom (D)?

	A	B	C	D
	Number of Short-Term Objectives	Number of Objectives that Include a Logical Statement of Expected Behavior to a Specified Standard	Number of Objectives That Are Part of an Established Curriculum	Number of Objectives To Be Met In The Regular Classroom
1. Reading or oral or written English				
a. Oral expression				
b. Listening comprehension				
c. Written expression				
d. Spelling				
e. Basic reading skill				
f. Reading comprehension				
2. Mathematics				
a. Mathematics calculation				
b. Mathematics reasoning				
3. Science				
4. Social science				
5. General academic	6	2		
6. Other academic				
7. Social adaptation	1			
8. Self-help skills	2	1		
9. Emotional				
10. Physical Education	2			2
11. Motor skills	1			
a. Gross motor skills				
b. Fine motor skills	1			
12. Speech				
13. Visual acuity				
14. Hearing				
15. General physical health				
16. Vocational/prevocational				
a. Career awareness				
b. Career exploration				
c. Career preparation				
17. Other functional				

8. How many short-term objectives are listed that show intended beginning and target completion dates that encompass a time frame that:

   a. Begins and ends within the first half of the school year? 12

   b. Begins and ends within the second half of the school year? . . . . _______

   c. Extends from the beginning to the end of the school year? . . . . _______

   d. Is less than the full school year but begins within the first half of the school year and ends within the second half? . . . . _______

   e. Time frame is neither stated nor implied . . . . _______

9. What proportion (or amount) of the student's time is assigned to the special services specified on the IEP? (Include only special services that replace regular instruction.) (Enter "√" if IEP does not give proportion or amount of time.)

   85 percent or _______ minutes per week

10. Which of the following related services is the student intended to receive?

(Circle all that apply)

Audiology 1
Counseling . . . . [✓ 2]
Medical services . . . . [✓ 3]
Occupational therapy 4
Parent counseling and training 5
Physical therapy 6
Psychological services 7
Recreation 8
Social work service 9
Transportation 10
Other ______________________________ . . 11

11. Which of the following best describes this IEP's statement of rationale for placement?

(Circle one)

The IEP does not include such a statement 1

There is such a statement, but it does not add to what is already clear from the balance of the IEP . . . . [✓ 2]

There is such a statement, and the statement adds to the information provided by the balance of the IEP 3

12. Which of the following best describes the statement of beginning date(s) of service?

(Circle one)

Is (are) specifically stated . . . . [✓ 1]

May be inferred from dates given for goals or objectives 2

Must be inferred from date IEP was prepared 3

There is insufficient information upon which to base an inference 4

13. Which of the following best describes the statement(s) of duration of services to be provided?

(Circle one)

Is (are) specifically stated . . . . [✓ 1]

May be inferred from dates given for goals or objectives 2

Must be inferred from headings that state that goals are "annual" goals 3

States that services will be provided "as long as needed" 4

There is insufficient information upon which to base an inference 5

14. Which of the following statements best describes the evaluation procedure for the short-term objectives?

(Circle one)

Procedure is clear from the short-term objectives 1

Procedure is precise statements of how the evaluation should be conducted 2

Procedure must be inferred from unclear statements or unclear short-term objectives . . . . [✓ 3]

Procedure cannot be inferred because it is not stated and IEP has no short-term objectives 4

15. Which of the following statements best describes the evaluation schedule for the short-term objectives?

(Circle one)

Schedule is specifically stated as being the evaluation schedule 1

Schedule may be implied from short-term objectives 2

Schedule must be implied from the beginning-of-treatment and end-of-treatment dates . . . . [✓ 3]

Schedule is not stated or implied 4

16. Which of the following statements best describes whether at least an annual evaluation of short-term objectives is required?

(Circle one)

All of the short-term objectives appear to require at least an annual evaluation . . . . [✓ 1]

Some but not all of the short-term objectives appear to require at least an annual evaluation 2

None of the short-term objectives require at least an annual evaluation 3

Such information is not given and cannot be inferred 4

Exhibit B

NOTE: All information entered on this exhibit is fictitious.

EXHIBIT B

INDIVIDUALIZED EDUCATION PROGRAM

Page 1 of 2

1. **Personal Data**

Name of Student [redacted] Birth Date 9 Sex F Race

School Last Attended Nelson Elementary City Smithfield State

2. **Approval of Parent, Guardian, or Surrogate**

I approve the Individualized Education Program for the above named student.

Signed [redacted] Date 9/3/77

3. **Summary of Present Level of Educational Functioning**

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Assessment Area	Assessment Results	Assessment Instrument Used	Assessment Area	Assessment Results	Assessment Instrument Used
Math Reasoning			Mechanics of English		
Math Fundamentals			Spelling	Grade 1.2	PIAT
Total Math	Grade 1.5	PIAT	Total Language		
Reading Vocabulary			Total Battery		
Reading Comprehension	Grade 1.1	PIAT	Vocational Skills		
Total Reading			Self-Help Skills	inadequate	
Psychomotor Skills	adequate		Social Adaptation	adequate	

4. Based on the principle of the least restrictive environment, the following reasons are given to substantiate why this program is appropriate.

Janet will benefit from the individual attention available through this placement.

Page 2 of 2

5. **Educational Program**

A. Annual Program Goal	B. Short-Term Objective	C. Strategies and/or Techniques	D. Marterials and/or Resources	E. Hrs. Per Week	F. Staff Responsible	G. Starting Date	H. Expected Ending Date	I. Expected Mastery Level
Better reading and writing skills				2/day				
Learn alphabet		Flash cards	Flash cards		Earley	Oct.	Jan	Repeat alphabet
Increase recognition of basic sight words								with no more than one error
Improve hygiene	Will make booklet on personal cleanliness			1				
Phonetics	Improve ability to spell phonetically		as needed	1/day				
Improve gross motor skills	Improve balance	Balance exercise	Balance beam	2	Bates	Oct.	Jan	85%
Improve social skills		Counseling		1	Counselor			succeeds at walking from
Vocational				1/day				one end to other

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. **IEP Committee Information**

Date IEP Was Prepared 9-1-77

Proposed Review Date 10-1-78

7. IEP Committee Members Who Participated:

Name	Title
H. M. Smith	Assistant Principal
P. Amberson	Social Service Rep.
	Guardian

EXHIBIT
(contin

FORM B

INDIVIDUAL EDUCATION PROGRAM: IMPLEMENTATION PLAN

i. Name of Student [redacted] Date of Birth_____ AGE____ GRADE____ SCHOOL__________ SYSTEM__________

Date of Entry into Program________ Projected Ending Date________ H. M. Smith

(Signature of Person Completing this form)

ii. Program Goals	iii. Instructional Objectives (Includes Criteria for Mastery)	iv. Strategies and/or Materials	v. Date Started	vi. Date Ended	vii. Mastery for each Instructional Objective
① Reading and Writing	Learn alphabet	Flash cards			Repeat alphabet with 1 or less errors.
② Mathematics	Given problem in 2 and 3 digit addition, will be able to complete answers with 85% accuracy				
③ Social skills					
④ Gross Motor	Student will improve coordination to mastery level of: ① catching ball 75% of time ② kicking ball 80% of time		Jan.	May	75% of time 80% of time

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ii. Program Goals	iii. Instructional Objectives (Includes Criteria for Mastery)	iv. Strategies and/or Materials	v. Date Started	vi. Date Ended	vii. Mastery for each Instructional Objective
(5) Vocational	Objectives 1-6 of Standard Vocational Revision Curriculum	as listed for objectives			as listed for objectives

IEP EVALUATION CHECKLIST

Form No. . . . . . 1 . . 2

Funding Source . . 1 . . 2 . . 3 . . 4

IEP No. Exhibit B

Rater ____________

1. How many pages are in the IEP? 4

2. Which of the following apply to this IEP?

(Circle all that apply)

Is typed 1

Is handwritten but easy to read . . . . [✓ 2]

Is handwritten and difficult to read 3

Amount of space provided limits number of annual goals 4

Amount of space provided limits number of short-term objectives 5

Total IEP consists of separate IEPs from different teachers or service sources 6

IEP consists of a "placement" document and an "implementation" document 7

3. For which of the following does the IEP form have a specific heading (A)? For which of the headings has information been entered (B)?

	A	B
	Includes Heading	Information Has Been Entered
Student's age or birthdate	[✓ 1]	[✓ 1]
Student's grade level	[✓ 2]	2
Student's sex	[✓ 3]	[✓ 3]
Student's race	[✓ 4]	4
Student's primary language	5	5
Present level of performance information	[✓ 6]	[✓ 6]
Assessment data to support present level of performance	[✓ 7]	[✓ 7]
Date of the assessment of present level of performance	8	8
Nature of student's handicap	9	9
Student's strengths	10	10
Student's special interests	11	11
Student's school attendance record	12	12

3. (continued)

	A Includes Heading	B Information Has Been Entered
Placement recommendation	.13	.13
Services ("special" or "related") to be provided	.14	.14
Rationale for placement or services	[✓ 15]	[✓ 15]
Personnel responsible for services	[✓ 16]	[✓ 16]
Date service is to begin	[✓ 17]	[✓ 17]
Anticipated duration of service	[✓ 18]	[✓ 18]
Recommended extent of participation in regular program	[✓ 19]	[✓ 19]
Physical education needs	.20	.20
Date of preparation of IEP	[✓ 21]	[✓ 21]
Participants in the IEP process	[✓ 22]	[✓ 22]
Signature of individuals who approved the IEP	.23	.23
Titles of individuals who approved the IEP	[✓ 24]	[✓ 24]
Parental approval	[✓ 25]	[✓ 25]
Results of parental notification	.26	.26
Annual goals	[✓ 27]	[✓ 27]
Priority listing of annual goals	.28	.28
Short-term objectives	[✓ 29]	[✓ 29]
Recommended instructional materials, resources, strategies, or techniques	[✓ 30]	[✓ 30]
Date short-term objectives met	.31	.31
Proposed evaluation criteria	[✓ 32]	[✓ 32]
Proposed evaluation procedure	.33	.33
Proposed evaluation schedule	.34	.34
Proposed IEP review date	[✓ 35]	[✓ 35]
Actual IEP review date	.36	.36
Results of IEP review	.37	.37
Participants in IEP review	.38	.38
Other Date of Program Entry	[✓ 39]	.39
	.40	.40

4. Which and how many of each of the following were participants in the IEP process (A)? Which and how many of each signed the IEP (B)?

		A Participated in the Process	B Signed the IEP
		(Write in numbers)	
a.	Regular classroom teacher		
b.	Special education teacher		
c.	Physical education teacher		
d.	Speech or language therapist		
e.	Physical or occupational therapist		
f.	Other therapist		
g.	One of the above, but can't tell which		
h.	Qualified LEA representative		
i.	Principal or assistant principal	1	1
j.	School representative		
k.	Supervisor (or facility supervisor)		
l.	Case manager, chairperson, program manager, or program coordinator		
m.	School psychologist or psychometrist	1	1
n.	Counselor		
o.	Social worker	1	1
p.	Nurse		
q.	Parent, guardian, or surrogate	1	1
r.	The student		
s.	Name without noting position		
t.	Other ______________________________		

5. Which of the following is true of the IEP format regarding the provision for parental, guardian, or surrogate approval? Does the IEP show disapproval?

(Circle one of the first six numbers; circle 7 if appropriate.)

Approval (or disapproval) would be for the entire IEP 1

Approval (or disapproval) would be for annual goals but not for short-term objectives 2

Approval (or disapproval) would be for part but not all of the short-term objectives. . . . . [✓ 3]

Approval (or disapproval) would be for services to be provided but not for annual goals or short-term objectives . . . 4

Approval (or disapproval) would be for some portion of the IEP, but cannot determine what would be approved. 5

No place for approval or disapproval is provided. 6

The IEP was disapproved 7

6. Are present level of functioning (A) and supporting data (B) listed for the following functional areas? In which functional areas is there a statement or a clear indication from the supporting data that special education is needed (C)? In which functional areas is there a statement or a clear indication from the supporting data that special education is not needed (D)? How many annual goals are listed for each functional area (E)? How many annual goals listed for each functional area include a logical statement of expected behavior to a specified standard (F)?

	A	B	C	D	E	F
	Present Level of Functioning Listed	Supporting Data Listed	Special Education Needed	Special Education Not Needed	Number of Goals Listed	Number of Goals That Include a Logical Statement of Expected Behavior to a Specified Standard
1. Reading or oral or written English	[✓ 1]	[✓ 1]	[✓ 1]	1	5	1
a. Oral expression	a	a	a	a		
b. Listening comprehension	b	b	b	b		
c. Written expression	c	c	c	c		
d. Spelling	[✓ d]	[✓ d]	[✓ d]	d		
e. Basic reading skill	e	e	e	e		
f. Reading comprehension	[✓ f]	[✓ f]	[✓ f]	f		
2. Mathematics	[✓ 2]	[✓ 2]	[✓ 2]	2	1	
a. Mathematics calculation	a	a	a	a		
b. Mathematics reasoning	b	b	b	b		
3. Science	3	3	3	3		
4. Social science	4	4	4	4		
5. General academic	5	5	5	5		
6. Other academic ______	6	6	6	6		
7. Social adaptation	[✓ 7]	7	7	[✓ 7]	1	
8. Self-help skills	[✓ 8]	8	[✓ 8]	8	1	
9. Emotional	9	9	9	9		
10. Physical Education	10	10	10	10		
11. Motor skills	[✓ 11]	11	11	[✓ 11]	1	
a. Gross motor skills	a	a	a	a	1	
b. Fine motor skills	b	b	b	b		
12. Speech	12	12	12	12		
13. Visual acuity	13	13	13	13		
14. Hearing	14	14	14	14		
15. General Physical Health	15	15	15	15		
16. Vocational/prevocational	16	16	16	16	1	
a. Career awareness	a	a	a	a		
b. Career exploration	b	b	b	b		
c. Career preparation	c	c	c	c		
17. Other functional ______	17	17	17	17		

7. How many short-term objectives are listed for each functional area (A)? How many short-term objectives listed for each functional area include a logical statement of expected behavior to a specified standard (B)? How many of the objectives clearly are a part of a standard curriculum (C)? How many are intended to be met in the regular classroom (D)?

	A	B	C	D
	Number of Short-Term Objectives	Number of Objectives that Include a Logical Statement of Expected Behavior to a Specified Standard	Number of Objectives That Are Part of an Established Curriculum	Number of Objectives To Be Met In The Regular Classroom
1. Reading or oral or written English	2	1		
a. Oral expression				
b. Listening comprehension				
c. Written expression				
d. Spelling	1			
e. Basic reading skill				
f. Reading comprehension				
2. Mathematics	2	2		
a. Mathematics calculation				
b. Mathematics reasoning				
3. Science				
4. Social science				
5. General academic				
6. Other academic				
7. Social adaptation				
8. Self-help skills	1			
9. Emotional				
10. Physical Education				
11. Motor skills	3	3		
a. Gross motor skills	3	3		
b. Fine motor skills				
12. Speech				
13. Visual acuity				
14. Hearing				
15. General physical health				
16. Vocational/prevocational	6	6	6	
a. Career awareness				
b. Career exploration				
c. Career preparation				
17. Other functional				

8. How many short-term objectives are listed that show intended beginning and target completion dates that encompass a time frame that:

a. Begins and ends within the first half of the school year? 1

b. Begins and ends within the second half of the school year? 2

c. Extends from the beginning to the end of the school year? 11

d. Is less than the full school year but begins within the first half of the school year and ends within the second half? . . . . ______

e. Time frame is neither stated nor implied . . . . ______

9. What proportion (or amount) of the student's time is assigned to the special services specified on the IEP? (Include only special services that replace regular instruction.) (Enter "√" if IEP does not give proportion or amount of time.)

________ percent or 1200 minutes per week

10. Which of the following related services is the student intended to receive?

(Circle all that apply)

Audiology 1

Counseling 2

Medical services 3

Occupational therapy 4

Parent counseling and training 5

Physical therapy 6

Psychological services 7

Recreation 8

Social work service 9

Transportation 10

Other ____ . .11

11. Which of the following best describes this IEP's statement of rationale for placement?

(Circle one)

The IEP does not include such a statement 1

There is such a statement, but it does not add to what is already clear from the balance of the IEP 2

There is such a statement, and the statement adds to the information provided by the balance of the IEP . . . . [✓ 3]

12. Which of the following best describes the statement of beginning date(s) of service?

(Circle one)

Is (are) specifically stated 1

May be inferred from dates given for goals or objectives . . . . . [✓ 2]

Must be inferred from date IEP was prepared 3

There is insufficient information upon which to base an inference 4

13. Which of the following best describes the statement(s) of duration of services to be provided?

(Circle one)

Is (are) specifically stated 1

May be inferred from dates given for goals or objectives . . . . . [✓ 2]

Must be inferred from headings that state that goals are "annual" goals 3

States that services will be provided "as long as needed" 4

There is insufficient information upon which to base an inference 5

14. Which of the following statements best describes the evaluation procedure for the short-term objectives?

(Circle one)

Procedure is clear from the short-term objectives . . . . [✓ 1]

Procedure is precise statements of how the evaluation should be conducted 2

Procedure must be inferred from unclear statements or unclear short-term objectives 3

Procedure cannot be inferred because it is not stated and IEP has no short-term objectives 4

15. Which of the following statements best describes the evaluation schedule for the short-term objectives?

(Circle one)

Schedule is specifically stated as being the evaluation schedule 1

Schedule may be implied from short-term objectives . . . . [✓ 2]

Schedule must be implied from the beginning-of-treatment and end-of-treatment dates 3

Schedule is not stated or implied 4

16. Which of the following statements best describes whether at least an annual evaluation of short-term objectives is required?

(Circle one)

All of the short-term objectives appear to require at least an annual evaluation . . . . [✓ 1]

Some but not all of the short-term objectives appear to require at least an annual evaluation 2

None of the short-term objectives require at least an annual evaluation 3

Such information is not given and cannot be inferred 4